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Water Resources Data for Michigan, Water Year 1971. Part 2. Water Quality Records

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1972

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1971

Water Resources Data for Michigan

Water Year 1971

Part 2. Water Quality Records

MARCH 3, 1849

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DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MI-71-2

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SPRINGFIELD, VA. 22161

Prepared in cooperation with the State of Michigan
and with other agencies

152

CALENDAR FOR WATER YEAR 1971

OCTOBER 1970

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

NOVEMBER 1970

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

DECEMBER 1970

S	M	T	W	T	F	S
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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

JANUARY 1971

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

FEBRUARY 1971

S	M	T	W	T	F	S
	1	2	3	4	5	6
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

MARCH 1971

S	M	T	W	T	F	S
	1	2	3	4	5	6
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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

APRIL 1971

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

MAY 1971

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

JUNE 1971

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

JULY 1971

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST 1971

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER 1971

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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Water resources data for the 1971 water year for Michigan consist of records of discharge and water quality of streams, and water quality of lakes and reservoirs. This report contains water quality for 41 gaging stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating local, State, and Federal agencies in Michigan.

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for
Michigan
Water Year 1971

Part 2. Water Quality Records

UNITED STATES
DEPARTMENT OF THE INTERIOR
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Prepared in cooperation with the State of Michigan
and with other agencies

Ia

Prepared in cooperation with

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    Geological Survey Division
Michigan Department of State Highways
Branch County Board of Supervisors
Kalamazoo County Board of Supervisors
Van Buren County Board of Supervisors
Corps of Engineers, U. S. Army
U. S. Environmental Protection Agency

Water resources records, 1971, for Michigan are in the following reports of the U. S. Geological Survey

1. Water Resources Data for Michigan
   Part 1. Surface Water Records
2. Water Resources Data for Michigan
   Part 2. Water Quality Records
3. Summary of Ground-Water Hydrological
   data in Michigan (open file report)

Copies of this report may be obtained from
District Chief, Water Resources Division
U. S. Geological Survey
2400 Science Parkway
Okemos, Michigan 48864

1973

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(letters after station name designate type of data: (c), chemical; (t), water temperature; (s), sediment)

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WATER RESOURCES DATA FOR MICHIGAN, 1971

Part 2. Water Quality Records

INTRODUCTION

Water resources data for the 1971 water year for Michigan include records of data for the chemical and physical characteristics of surface and ground waters. Data on the quality of surface water (chemical, temperature, and sediment) were collected from designated sampling sites at predetermined intervals such as once-daily, weekly, monthly or less frequently, and at some sites data were recorded on punched paper tape at 60-minute intervals. Records are given for 371 sampling stations, of which 41 are continuous-record stations, 24 are partial-record stations, and 306 are miscellaneous sites. Records of chemical analyses also are given for 260 ground-water sites. Locations of surface-water quality stations are shown in Figures 3 and 4. The records were collected by the Water Resources Division of the U.S. Geological Survey under the direction of T. R. Cummings, district chief, and John J. Molloy, district chief, Water Resources Division, Columbus, Ohio. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Michigan.

The Geological Survey has published records of chemical quality, water temperatures, and sediment since 1941 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Beginning with the 1964 water year, water-quality records have been released by the Geological Survey in annual reports on a State-boundary basis. These reports are for limited distribution and are designed primarily for rapid release of data shortly after the end of the water year. These records will be published later in Geological Survey water-supply papers.

COOPERATION

This report was prepared by the U.S. Geological Survey under cooperative agreement with the following organizations:

Michigan State Department of Natural Resources, Ralph A. MacMullen, directory, Gaylord A. Walker, deputy director--administration.

Water Resources Commission, Ralph W. Purdy, executive secretary.

Geological Survey Division, A. E. Slaughter, chief.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, and the U.S. Environmental Protection Agency.

Other agencies furnishing assistance were:

Branch County Board of Supervisors; Cleveland-Cliffs Iron Company; Kalamazoo County Board of Supervisors; Van Buren County Board of Supervisors; Washtenaw County Board of Supervisors.

DEFINITION OF TERMS

Terms related to water-quality and hydrologic data, as used in this report are defined as follows:

Acre-foot (AC-FT, ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons.

Bed material is the shifting portion of fragmented alluvial material of which the streambed is composed.

Biochemical oxygen demand (BOD) is the amount of oxygen required by bacteria while stablizing decomposable organic matter under aerobic conditions.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, or about 646,000 gallons, and represents a runoff of approximately 0.0372 inches from 1 square mile

Chemical oxygen demand (COD) indicates the quantity of oxidizable compounds in water and varies with water composition, temperature, period of contact, and other factors.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate or delayed incubation membrane filter method or by the multiple fermentation tube method, as specified in the individual analyses.

Cubic foot per second (cfs,CFS) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

Mean discharge is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Drainage area of a stream at a specified location is that area, measured in horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface stream and bodies of impounded surface water.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is computed.

Hardness of water is a physical-chemical characteristic attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per liter (ug/1,UG/L) is a unit expressing the concentration of chemical constituents in solution as weight (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (mg/1,MG/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume of water. Milligrams or micrograms per liter may be converted to milliequivalents (one thousandth of a gram-equivalent weight of a constituent) per liter by multiplying by the factors in table 1, page 5. Concentration of suspended sediment also is expressed in mg/1, and is based on the weight of sediment per liter of water-sediment mixture. Sediment concentrations may be converted to parts per million by using the factors in table 2, p. 5.

Partial-record station is a particular site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses. The frequency of collection at such sites is usually less than once per month.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling) (Guy, 1969).

Particle-size classification, used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024- 0.004	Sedimentation.
Silt..........	.004 - .062	Sedimentation.
Sand..........	.062 - 2.0	Sedimentation or sieve.
Gravel........	2.0 -64.0	Sieve.

Table 1.--Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})*...	0.11119	Iodide (I^{-1})......	0.00788
Ammonia as NH_4^{+1}...	.05544	Iron (Fe^{+3})*......	.05372
Barium (Ba^{+2})......	.01456	Lead (Pb^{+2})*......	.00965
Bicarbonate (HCO_3^{-1})	.01639	Lithium (Li^{+1})*...	.14411
Bromide (Br^{-1}).....	.01251	Magnesium (Mg^{+2})..	.08226
Calcium (Ca^{+2}).....	.04990	Manganese (Mn^{+2})*.	.03640
Carbonate (CO_3^{-2})..	.03333	Nickel (Ni^{+2})*....	.03406
Chloride (Cl^{-1})....	.02821	Nitrate (NO_3^{-1})...	.01613
Chromium (Cr^{+6})*...	.11539	Nitrite (NO_2^{-1})...	.02174
Cobalt (Co^{+2})*.....	.03394	Phosphate (PO_4^{-3}).	.03159
Copper (Cu^{+2})*.....	.03148	Potassium (K^{+1})...	.02557
Cyanide (CN^{-1})*....	.03844	Sodium (Na^{+1}).....	.04350
Fluoride (F^{-1}).....	.05264	Strontium (Sr^{+2})*.	.02283
Hydrogen (H^{+1}).....	.99209	Sulfate (SO_4^{-2})...	.02082
Hydroxide (OH^{-1})...	.05880	Zinc (Zn^{+2})*......	.03060

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Table 2.--Factors for conversion of sediment concentration in parts per million to milligrams per liter* (All values calculated to three significant figures)

Range of concentration (ppm)	Multiply by	Range of concentration (ppm)	Multiply by
0 - 15,900	1.00	322,000 - 341,000	1.26
16,000 - 46,800	1.02	342,000 - 361,000	1.28
46,900 - 76,500	1.04	362,000 - 380,000	1.30
76,600 - 105,000	1.06	381,000 - 399,000	1.32
106,000 - 133,000	1.08	400,000 - 416,000	1.34
134,000 - 159,000	1.10	417,000 - 434,000	1.36
160,000 - 185,000	1.12	435,000 - 451,000	1.38
186,000 - 210,000	1.14	452,000 - 467,000	1.40
211,000 - 233,000	1.16	468,000 - 483,000	1.42
234,000 - 256,000	1.18	484,000 - 498,000	1.44
257,000 - 279,000	1.20	499,000 - 514,000	1.46
280,000 - 300,000	1.22	515,000 - 528,000	1.48
301,000 - 321,000	1.24	529,000 - 542,000	1.50

*Based on water density of 1.000 g/ml and sediment densiby of 2.65 g/cc.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis (Guy, 1969).

Sediment is solid material that originates mostly from disintegrated rocks and is transformed by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time. It is computed by multiplying discharge times mg/l times 0.0027.

Total sediment discharge or total sediment load is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that is discharged during a given time (Colby and Hembree, 1955).

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/l).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigating farmland.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the dissolved solids content in the water. Commonly, the amount of dissolved-solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream or from well to well, and it may even vary in the same source with changes in the composition of the water.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff". Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the location of the thermograph or a digital mechanism that automatically records water temperature on paper tape.

Tons per acre-foot indicates the dry weight of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

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SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

International Hydrological Decade (IHD) River Stations provide a general index of runoff and materials in the water balance (discharge of water, and dissolved and transported solids) of the world. In the United States, IHD Stations provide indices of runoff and the general distribution of water in the principal river basins of the conterminous United States and Alaska.

DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each water-quality station, gaging station, and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continuous-record stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station.

Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station, such as 04028100 which appears just to left of the station name includes the 2-digit part number "04" plus the 6-digit downstream order number "028100". In this report, the records are listed in downstream order by parts. The part number referes to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 4 (St. Lawerence River basin). All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

WELL NUMBERS

The well numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude. The following seven digits denote degrees, minutes and seconds of longitude. The last 2 digits are a sequential number for wells within a 1-second grid. The system provides the geographic location of the well and a unique number for each well. See figure 1, below.

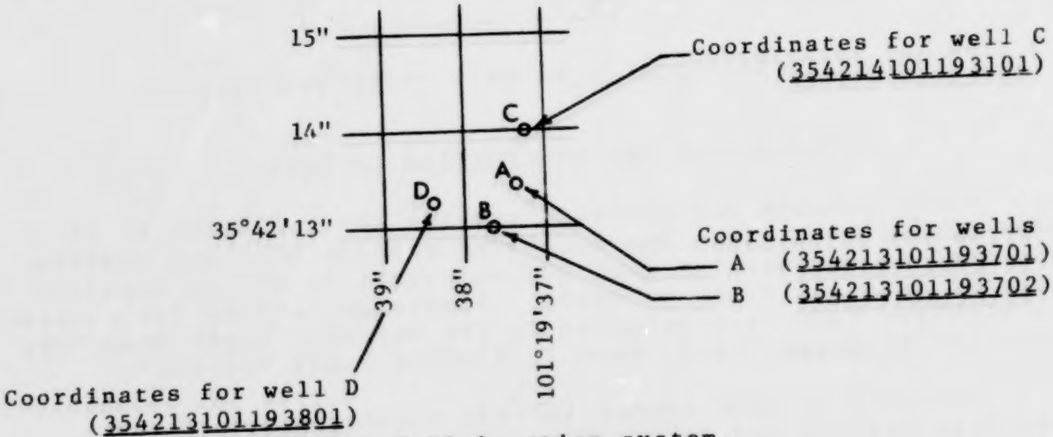
15"
14"
35°42'13"
C
A
B
D
39"
38"
101°19'37"
Coordinates for well C
(354214101193101)
Coordinates for wells
A (354213101193701)
B (354213101193702)
Coordinates for well D
(354213101193801)

Figure 1.--Well location system.

A well numbering system used more generally in Michigan is also used in this report. This system indicates the location of wells within the rectangular subdivision of the land with reference to the Michigan meridian and base line.

The first two segments of the number refer to the township and range. The last two segments indicate the section and the location within the section. Sections are divided into quadrents labeled counter-clockwise from the upper right as A, B, C, and D. Each quadrent is then similarly subdivided 3 times, thus each section is subdivided into tracts of 2.5 acres. Lettered quadrants are read from left to right, with the largest subdivision on the left. When there is more than one well within a 2.5 acre tract, the wells are numbered sequentially with two digits. For example, a well located within the circled area of section 16, Town 3 North, Range 8 West, (see figure 2, page 8) would have the location number 3N8W16CCCB01. A second well within the same 2.5 acre subdivision would be numbered 3N8W16CCCB02.

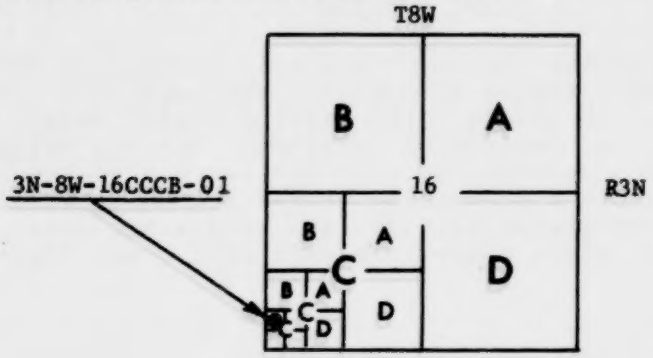

Figure 2.--Michigan local well numbering system.

COLLECTION AND EXAMINATION OF DATA

Water samples for analyses usually are collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the chemical constituents and sediment loads. Discharge records for streams in Michigan have been released in the report, "Water Resources Data for Michigan, 1971, Part 1. Surface Water Records".

The data in this report include a description of the sampling station and tabulations of the samples analyzed. The description of the sampling station gives the location, drainage area, periods of record for the various water-quality data, extremes of the pertinent data, and general remarks, in a format similar to that used for streamflow gaging stations. For ground-water sampling stations, no descriptive statements are given. However, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of ground water.

Water-quality information is presented for chemical quality, microbiological, water temperature, and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain physical properties or characteristics such as hardness, sodium adsorption ratio, specific conductance, and pH. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water-temperature data represent once-daily observations except for stations where a continuous temperature recorder furnishes information from which daily minimums and maximums are obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations and for particle-size distribution of suspended sediment and bed material.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the U.S. Geological Survey began to use the metric system; data for chemical constituents and concentrations of suspended sediment are now reported in milligrams per liter (mg/l) and water temperatures are given in degrees Celsius (centigrade, °C). In waters with a density of 1.000 g/ml (grams per milliliter), parts per millions and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter. To convert temperature in degrees Celsius to degrees Fahrenheit, see table 3, page 12.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. (See "Definitions of Terms", p. 4.)

Table 3.--Degrees Celsius (°C) to degrees Fahrenheit (°F)*
(Temperature reported to nearest 0.5°C)

Table 3.--Degrees Fahrenheit (°F) to degrees Celsius (°C)*
(Temperature reported to nearest 0.5°C)

°F	°C	°F	°C	°F	°C	°F	°C	°F	°C
32	0.0	50	10.0	68	20.0	86	30.0	104	40.0
33	.5	51	10.5	69	20.5	87	30.5	105	40.5
34	1.0	52	11.0	70	21.0	88	31.0	106	41.0
35	1.5	53	11.5	71	21.5	89	31.5	107	41.5
36	2.0	54	12.0	72	22.0	90	32.0	108	42.0
37	3.0	55	13.0	73	23.0	91	33.0	109	43.0
38	3.5	56	13.5	74	23.5	92	33.5	110	43.5
39	4.0	57	14.0	75	24.0	93	34.0	111	44.0
40	4.5	58	14.5	76	24.5	94	34.5	112	44.5
41	5.0	59	15.0	77	25.0	95	35.0	113	45.0
42	5.5	60	15.5	78	25.5	96	35.5	114	45.5
43	6.0	61	16.0	79	26.0	97	36.0	115	46.0
44	6.5	62	16.5	80	26.5	98	36.5	116	46.5
45	7.0	63	17.0	81	27.0	99	37.0	117	47.0
46	8.0	64	18.0	82	28.0	100	38.0	118	48.0
47	8.5	65	18.5	83	28.5	101	38.5	119	48.5
48	9.0	66	19.0	84	29.0	102	39.0	120	49.0
49	9.5	67	19.5	85	29.5	103	39.5	121	49.5

*C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32.

Solutes

The methods of collecting and analyzing water samples for determining the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970). One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge depending on the source of material and the turbulence and the mixing of the stream. Some sites must be sampled at several verticals across the channel to determine accurately the solute load.

At chemical quality stations where monitors are installed, the records consist of daily maximum, minimum, and mean values for each constituent measured. More detailed records (hourly values) may be obtained from the district office of the U.S. Geological Survey at the address given on page II of this report.

Ground-water usually does not change significantly during short periods of time; infrequent sampling and analysis of ground water often adequately defines ground-water quality at a given site.

Temperature

Water temperatures are measured at most of the water-quality stations. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by discharges of heated effluents or by releases of waters from regulated impoundments.

At stations where continuously recording thermographs are present, the records consist of maximum and minimum temperatures for each day and the monthly averages.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the sub-divided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the sub-divided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

WATER-SUPPLY PAPERS

The annual series of water-supply papers that give infromation on quality of surface waters in Michigan are shown in the following table.

Table 4.--Water-supply paper numbers, water years 1941-70

Water Year	WSP No.	Water Year	WSP No.	Water Year	WSP No.
--	--	1955	1400	1965	1962
1941	942	1956	1450	1966	1992
1942	950	1957	1520	1967	2012
1943	970	1958	1571	A1968	2094
1944	1022	1959	1642	A1969	2144
1945	1030	1960	1742	A1970	2154
1946	1050	1961	1882		
1947	1102	1962	1942		
1948	1132	1963	1948		
1949	1162	1964	1955		
1950	1186				
1951	1197				
1952	1250				
1953	1290				
1954	1350				

A In press.

SELECTED REFERENCES

American Public Health Association, and others 1971, Standard methods for the examination of water and wastewater, 13th ed.: Am. Public Health Assoc., New York, 874 p.

Brown, Eugene, Skougstad, M. W., and Fishman, M. J., 1970, Methods for collection and analysis of water samples for dissolved minerals and gases: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. A1, 160 p.

Colby, B. R., 1963, Fluvial sediments--a summary of source, transportation, deposition, and measurement of sediment discharge: U.S. Geol. Survey Bull. 1181-A, 47 p.

Colby, B. R., and Hembree, C. H., 1955, Computations of total sediment discharge, Niobrara River near Cody, Nebraska: U.S. Geol. Survey Water-Supply Paper 1357, 187, p.

Colby, B. R., and Hubbell, D. W., 1961, Simplified methods for computing total sediment discharge with the modified Einstein procedure: U.S. Geol. Survey Water-Supply Paper 1593, 17 p.

Guy, H. P., 1970, Fluvial sediment concepts: U.S. Geol. Survey Techniques of Water-Resources Inv., book 3, chap. C1, 55 p.

_______, 1969, Laboratory theory and methods for sediment analysis: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. C1, 58 p.

Guy, H. P., and Norman, V. W., 1970, Field methods for measurement of fluvial sediment: U.S. Geol. Survey Techniques of Water-Resources Inv., book 3, chap. C2, 59 p.

Hem, J. D., 1970, Study and interpretation of the chemical characteristics of natural water, Revised edition: U.S. Geol. Survey Water-Supply Paper 1473, 363 p.

Langbein, W. B., and Iseri, K. T., 1960, General introduction and hydrologic definitions: U.S. Geol. Survey Water-Supply Paper 1541-A, 29 p.

Porterfield, George, 1972, Computations of fluvial-sediment discharge: *U.S. Geol. Survey Techniques of Water* Resources Inv., book 3, chap. C3, 66 p.

Ritter, J. R., and Helley, E. J., 1969, Optical method for determining particle sizes of coarse sediment: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. C3, 33 p.

U.S. Inter-Agency Committee on Water Resources, Subcommittee on Sedimentation, A study of methods used in measurement and analysis of sediment loads in streams. Published by the St. Anthony Falls Hydraulic Laboratory, Minneapolis, Minn.

_______, 1941, Methods of analyzing sediment samples: Rept. 4.

_______, 1953, Accuracy of sediment size analyses made by the bottom, withdrawal-tube method: Rept. 10.

_______, 1957, The development and calibration of visual accumulation tube: Rept. 11.

_______, 1957, Some fundamentals of particle size analysis: Rept. 12.

_______, 1959, Federal inter-agency sedimentation instruments and reports: Rept. AA.

_______, 1961, The single stage sampler for suspended sediment: Rept. 13.

_______, 1963, Determinations of fluvial sediment discharge: Rept. 14.

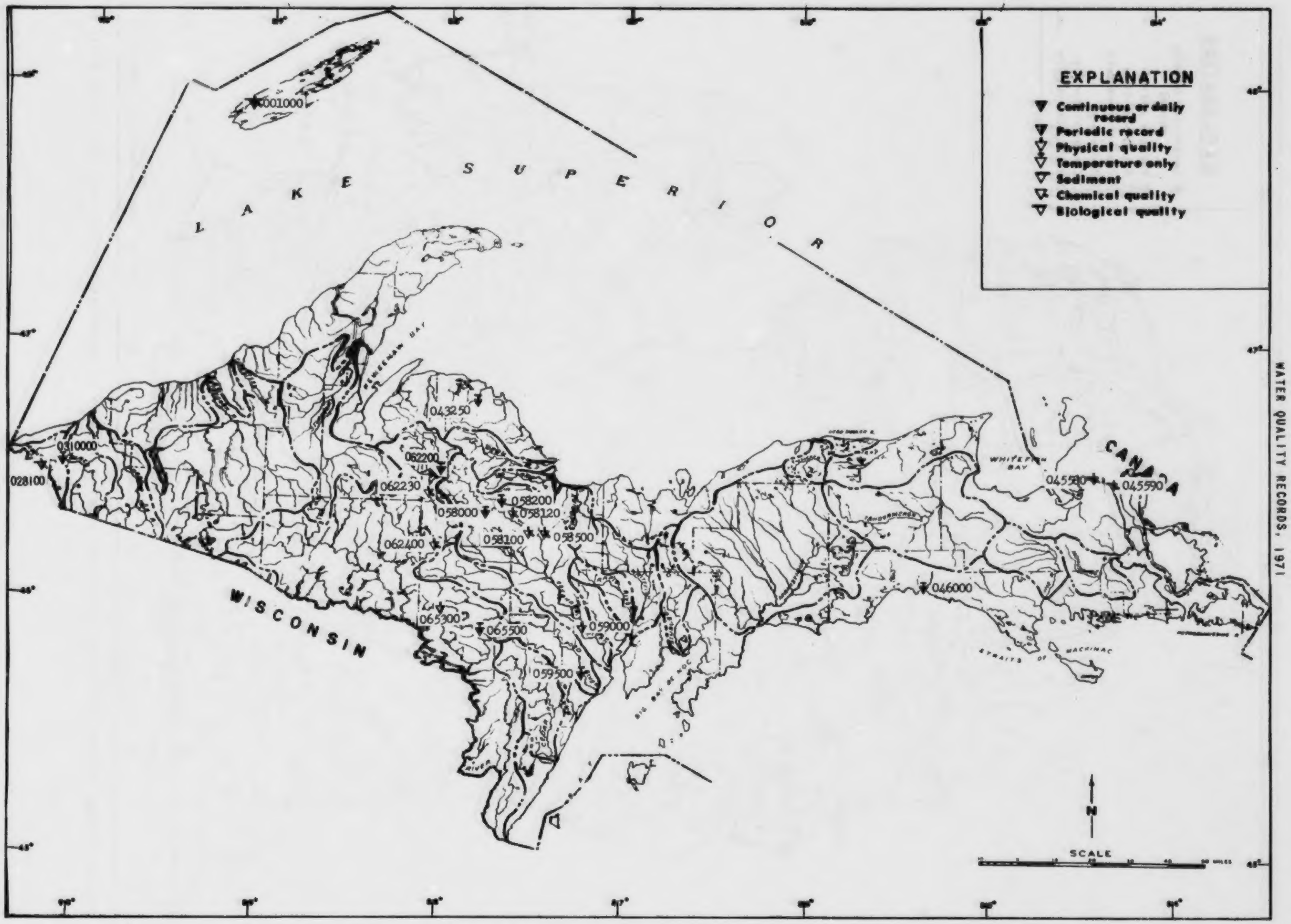
EXPLANATION
▼ Continuous or daily record
▼ Periodic record
▽ Physical quality
▽ Temperature only
▽ Sediment
▽ Chemical quality
▽ Biological quality
LAKE SUPERIOR
WISCONSIN
CANADA
WHITEFISH BAY
KEWEENAW BAY
BIG BAY DE NOC
STRAITS OF MACKINAC
N
SCALE
001000
310000
028100
043250
062200
062230
058000
058200
058120
058100
058500
062400
065300
065500
059000
059500
046000
045580
045590

Figure 3.--Map of Upper Peninsula of Michigan showing location of water-quality stations, 1971 water year.

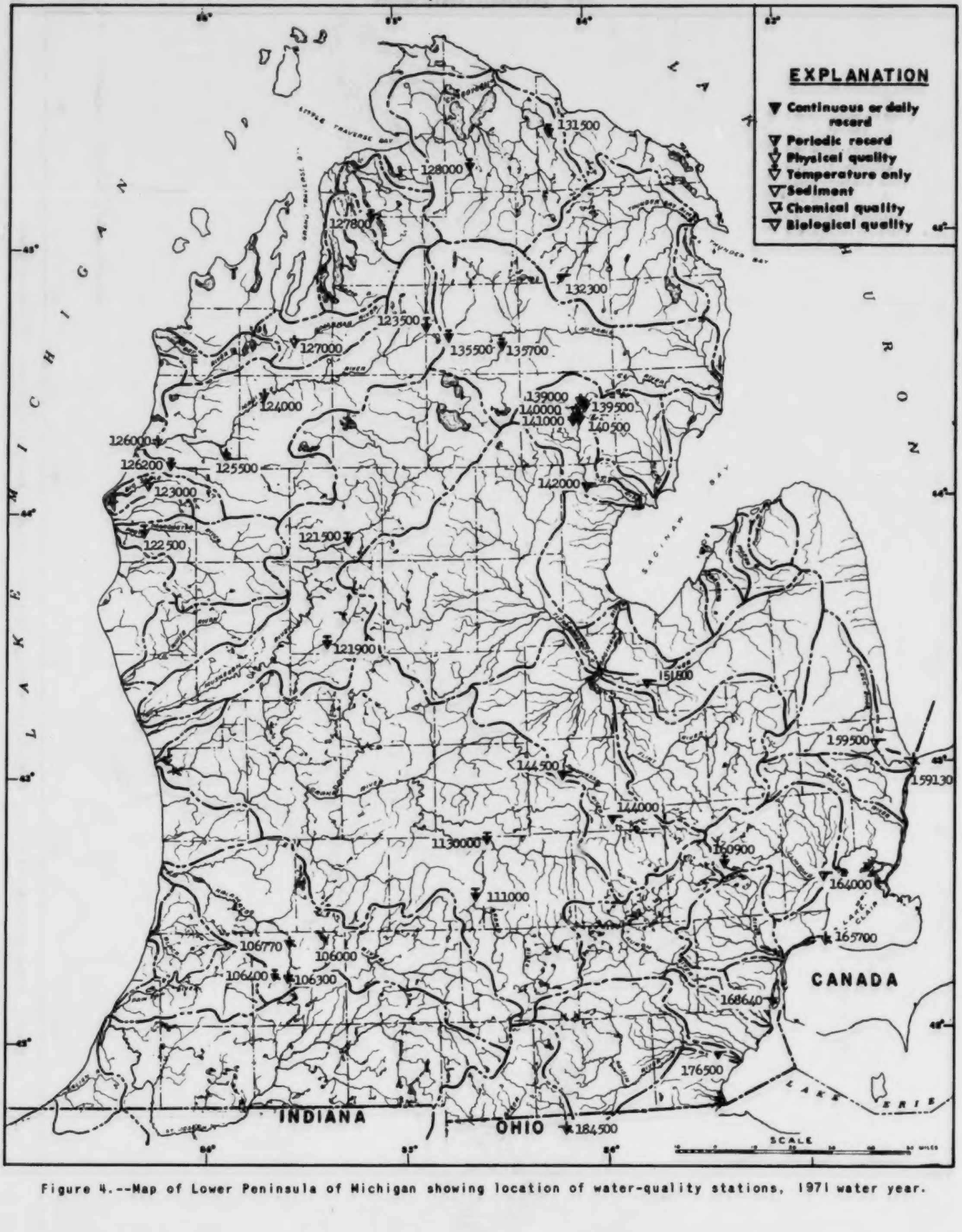
EXPLANATION
Continuous or daily record
Periodic record
Physical quality
Temperature only
Sediment
Chemical quality
Biological quality
LAKE MICHIGAN
LAKE HURON
SAGINAW BAY
LITTLE TRAVERSE BAY
GRAND TRAVERSE BAY
THUNDER BAY
LAKE ST. CLAIR
LAKE ERIE
CANADA
INDIANA
OHIO
SCALE
86°
85°
84°
83°
45°
44°
43°
42°
131500
128000
127800
132300
123500
135500
135700
127000
124000
139000
140000
141000
139500
140500
126000
126200
125500
123000
142000
122500
121500
121900
151800
159500
159130
144500
144000
113000
160900
164000
111000
165700
106770
106000
106400
106300
168640
176500
184500

Figure 4.--Map of Lower Peninsula of Michigan showing location of water-quality stations, 1971 water year.

04001000 WASHINGTON CREEK AT WINDIGO, MICH.
(Hydrologic bench-mark, pesticide and radiochemical station)

LOCATION.—Lat 47°55'23", long 89°08'42", in NW¼ sec.28, T.64 N., R.38 W., Keweenaw County, Isle Royal National Park, at gaging station on left bank 0.8 mile northeast of Windigo, and 35 miles southwest of Rock Harbor.

DRAINAGE AREA.—13.2 sq mi.

PERIOD OF RECORD.—Chemical analyses: October 1964 to September 1971.
Water temperatures: October 1964 to September 1971.
Sediment records: August 1966 to September 1971 (periodic).

EXTREMES, 1970-71:
Water temperatures: Maximum, 19.0°C June 16, July 3, 4; minimum, freezing point on many days during October to February.
Period of Record:
Water temperatures (1964-71): Maximum, 22.0°C July 26, 30, 31, 1970; minimum, freezing point on many days during winter period.

REMARKS.—Intermittent ice cover during winter period. Recorder stopped Oct. 18 to Feb. 10, range in temperature 0.0°C to 8.0°C; July 15, 16, range in temperature 14.0°C to 16.5°C.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
OCT. 15...	1130	5.7	14	540	80	20	4.7	2.7	.6	68	0	56
FEB. 10...	1600	3.1	15	740	41	20	5.0	3.4	.1	78	0	64
MAY 08...	1130	50	7.8	240	9	11	3.1	1.4	.5	32	0	26
JULY 29...	1030	19	11	740	15	18	4.5	2.0	.6	73	0	60
AUG. 28...	1135	2.3	13	--	--	23	7.3	3.7	.8	104	0	85

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	TOTAL PHOSPHORUS (PO4) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO
OCT. 15...	16	3.5	.2	.5	.00	113	96	1.74	70	14	8	.1
FEB. 10...	7.6	5.0	.2	.0	.07	107	95	.90	70	6	9	.2
MAY 08...	14	2.0	.0	.4	.01	62	56	8.37	40	14	7	.1
JULY 29...	2.0	2.0	.5	.6	.14	116	78	5.95	64	13	6	.1
AUG. 28...	2.8	5.0	.2	.5	.02	120	107	.75	88	3	8	.2

DATE	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND (MG/L)	COLIFORM (MPN)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	AIR TEMPERATURE (DEG C)
OCT. 15...	133	7.4	5.5	100	10.6	85	1.2	430	--	--	7.0
FEB. 10...	148	7.3	.0	50	12.2	85	--	--	100	--	-10.5
MAY 08...	71	7.0	6.5	75	11.6	96	2.4	--	23	--	--
JULY 29...	124	7.1	11.5	100	11.0	100	2.0	--	1100	20	--
AUG. 28...	176	7.4	12.0	60	--	--	--	--	--	--	--

04001000 WASHINGTON CREEK AT WINDIGO, MICH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.5	7.5	---	---	---	---	---	---	---	---	0.5	0.5
2	8.5	8.0	---	---	---	---	---	---	---	---	1.0	0.5
3	8.5	7.5	---	---	---	---	---	---	---	---	1.0	0.5
4	7.5	6.5	---	---	---	---	---	---	---	---	1.0	0.5
5	7.0	6.5	---	---	---	---	---	---	---	---	1.0	0.5
6	8.0	7.0	---	---	---	---	---	---	---	---	0.5	0.5
7	8.0	8.0	---	---	---	---	---	---	---	---	0.5	0.5
8	8.0	7.5	---	---	---	---	---	---	---	---	0.5	0.5
9	8.0	7.5	---	---	---	---	---	---	---	---	1.0	0.5
10	7.5	7.0	---	---	---	---	---	---	---	0.0	1.0	1.0
11	7.0	6.5	---	---	---	---	---	---	0.0	0.0	1.0	0.5
12	6.5	6.0	---	---	---	---	---	---	0.5	0.0	0.5	0.5
13	6.5	6.5	---	---	---	---	---	---	0.5	0.5	0.5	0.5
14	6.5	6.0	---	---	---	---	---	---	0.5	0.5	0.5	0.5
15	6.0	5.5	---	---	---	---	---	---	0.5	0.5	0.5	0.5
16	5.5	5.5	---	---	---	---	---	---	0.5	0.0	0.5	0.5
17	5.5	5.0	---	---	---	---	---	---	0.0	0.0	1.0	0.5
18	---	---	---	---	---	---	---	---	0.0	0.0	1.0	0.5
19	---	---	---	---	---	---	---	---	0.0	0.0	0.5	0.5
20	---	---	---	---	---	---	---	---	0.5	0.0	0.5	0.5
21	---	---	---	---	---	---	---	---	0.5	0.0	0.5	0.5
22	---	---	---	---	---	---	---	---	0.5	0.0	0.5	0.5
23	---	---	---	---	---	---	---	---	0.5	0.0	0.5	0.5
24	---	---	---	---	---	---	---	---	0.5	0.0	1.0	0.5
25	---	---	---	---	---	---	---	---	0.5	0.5	1.0	0.5
26	---	---	---	---	---	---	---	---	0.5	0.5	1.0	1.0
27	---	---	---	---	---	---	---	---	0.5	0.5	1.0	1.0
28	---	---	---	---	---	---	---	---	0.5	0.5	1.0	1.0
29	---	---	---	---	---	---	---	---	---	---	1.0	1.0
30	---	---	---	---	---	---	---	---	---	---	1.0	1.0
31	---	---	---	---	---	---	---	---	---	---	1.0	1.0
MONTH	---	---	---	---	---	---	---	---	---	---	1.0	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.0	1.0	3.5	3.0	13.0	9.5	17.0	15.0	14.5	13.5	14.0	13.0
2	1.0	1.0	4.0	2.5	14.0	11.0	18.0	14.5	14.5	13.5	16.5	14.5
3	1.0	1.0	5.0	3.5	15.5	12.0	19.0	15.5	14.0	12.5	17.0	16.0
4	1.0	1.0	5.0	4.5	16.5	13.0	19.0	17.5	14.0	12.5	17.0	17.0
5	1.0	1.0	5.0	4.5	15.5	14.0	18.5	16.0	14.0	12.5	18.0	17.0
6	1.0	1.0	6.5	4.5	16.5	12.5	18.5	15.5	14.5	13.0	18.0	17.5
7	1.0	1.0	7.0	5.5	16.0	14.0	18.5	16.0	16.0	14.5	17.5	16.0
8	1.0	0.5	8.5	6.0	15.5	12.0	17.5	15.0	16.5	15.0	16.5	15.5
9	0.5	0.5	9.0	6.5	15.5	11.0	17.0	14.5	17.0	16.0	15.5	14.0
10	1.0	0.5	10.0	7.0	15.5	12.5	17.0	15.0	17.0	15.5	14.5	14.5
11	0.5	0.5	9.0	7.0	14.5	13.0	17.5	15.0	15.5	13.5	14.5	13.5
12	1.0	0.5	7.5	6.0	14.0	13.0	17.5	16.0	15.5	14.0	13.5	12.5
13	1.0	0.5	10.0	7.0	16.5	13.5	16.5	15.0	15.5	13.5	13.0	12.5
14	1.0	1.0	10.5	7.5	18.0	14.5	17.0	14.5	13.5	12.5	14.0	13.0
15	1.0	0.5	10.5	9.5	18.5	15.0	---	---	13.5	12.5	13.0	12.0
16	1.0	0.5	12.0	8.5	19.0	15.0	---	---	14.5	13.0	12.0	11.5
17	1.0	0.5	11.0	9.5	18.5	16.0	18.0	14.5	15.0	14.5	11.5	11.0
18	1.0	0.5	9.5	8.5	18.0	16.0	16.5	14.5	16.5	15.0	11.0	10.0
19	1.0	1.0	8.5	7.0	17.5	15.5	16.5	15.0	17.0	16.5	10.0	9.5
20	2.0	1.0	7.0	6.5	17.5	15.5	17.0	15.5	17.0	16.0	10.0	9.0
21	2.5	1.5	9.5	6.5	17.5	15.0	17.0	15.5	16.5	15.5	10.0	9.5
22	2.5	1.5	10.5	7.5	18.0	15.0	17.0	16.0	16.5	15.5	10.0	9.5
23	2.5	2.0	10.0	8.0	17.5	15.0	18.5	16.5	15.5	13.0	9.5	9.0
24	2.5	2.0	8.0	6.5	15.5	13.5	18.0	16.0	13.0	12.5	9.0	8.5
25	3.0	2.5	6.5	6.0	15.5	13.0	17.5	16.0	12.5	12.5	9.5	8.5
26	4.0	3.0	8.5	5.5	15.0	12.5	17.0	15.5	12.5	11.0	9.5	9.0
27	4.0	3.5	10.0	7.5	16.5	13.5	15.5	14.0	12.5	11.5	10.5	9.5
28	3.5	3.5	11.5	9.0	18.5	15.0	15.5	14.0	13.0	11.5	12.0	10.5
29	4.0	3.5	12.5	10.5	17.0	16.5	14.0	11.5	13.0	13.0	12.0	11.0
30	4.0	3.5	13.5	11.0	16.5	16.0	14.0	12.0	14.5	13.0	12.0	11.0
31	---	---	12.0	10.5	---	---	14.0	12.0	14.0	12.5	---	---
MONTH	4.0	0.5	13.5	2.5	19.0	9.5	19.0	11.5	17.0	11.0	18.0	8.5
YEAR	19.0	0.0										

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04001000 WASHINGTON CREEK AT WINDIGO, MICH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	ALDRIN (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-AZINON (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALA-THION (UG/L)
OCT. 15...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAY 08...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	METHYL PARA-THION (UG/L)	PARA-THION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-AZINON IN BOTTOM DE-POSITS (UG/KG)
OCT. 15...	.00	.00	.00	.00	.00	<.20	<1.0	<.20	<.20	<.20	<.20
MAY 08...	--	--	--	--	--	--	--	--	--	--	--

DATE	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)	LINDANE IN BOTTOM DE-POSITS (UG/KG)	MALA-THION IN BOTTOM DE-POSITS (UG/KG)	METHYL PARA-THION IN BOT-TOM DE-POSITS (UG/KG)	PARA-THION IN BOTTOM DE-POSITS (UG/KG)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)
OCT. 15...	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	10	1	--
MAY 08...	--	--	--	--	--	--	--	--	0	0	0

DATE	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
OCT. 15...	0	10	2	<.5	.0	0	<1.5	<.4	3.7	<.5	<1
MAY 08...	5	2	2	--	--	0	--	--	--	--	--

DATE	DIS-SOLVED RADIUM 226 (RA) (PC/L)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)
OCT. 15...	0.03	0.05

SUSPENDED SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMP-ERATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM
OCT. 15...	1130	5.5	5.7	--	--	0	1	3
MAY 08...	1130	6.5	50	8	1.1	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
OCT. 15...	11	19	27	36	44	60	72
MAY 08...	--	--	--	--	--	--	--

04028100 MONTREAL RIVER NEAR IRONWOOD, MICH.

LOCATION.--Lat 46°30'26", long 90°31'47", in SE¼ SW¼ sec.31, T.48 N., R.47 W., Gogebic County, 0.2 mile above Spring Creek, and 4.2 miles northwest of Ironwood, Mich.

DRAINAGE AREA.--80.6 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1971.

REMARKS.--Samples collected monthly as part of the Environmental Protection Agency national network. Data prefaced by the letter "E" are estimates based on field analyses.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
OCT. 15...	1030	34	--	E15	--	--	1.0	.17	.14
NOV. 10...	0940	E62	--	E15	--	--	.60	.18	.18
DEC. 16...	0900	54	34	8.0	.00	.24	.60	.66	.28
FEB. 03...	1030	--	--	<5.0	--	--	.90	.35	.33
MAR. 17...	1445	--	26	6.0	.36	.00	.90	.14	.10
APR. 13...	1430	E1000	--	E20	--	--	.40	.060	.010
JUNE 03...	1430	E115	31	5.0	.72	.08	.40	.18	.070
JULY 28...	1445	E25	--	E55	--	--	1.6	.62	.48
SEP. 14...	1540	E90	62	11	.26	.13	2.5	.76	.64

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	NON-FILTRABLE RESIDUE (MG/L)	TOTAL RESIDUE (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)
OCT. 15...	--	--	--	E85	170	6.9	5.5	1
NOV. 10...	--	--	--	E50	139	7.2	4.5	2
DEC. 16...	114	12	126	54	133	6.9	.0	1
FEB. 03...	--	--	--	E85	177	6.8	.5	1
MAR. 17...	68	44	112	40	112	7.2	.0	1
APR. 13...	--	--	--	E35	57	6.8	1.0	3
JUNE 03...	85	17	102	42	94	7.0	17.0	2
JULY 28...	--	--	--	E90	194	6.9	16.0	4
SEP. 14...	130	52	182	80	198	7.5	17.5	2

DATE	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	PHENOLS (UG/L)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)	OIL-GREASE (SEVERITY)
OCT. 15...	11.2	92	2.8	200	7	4.5	0	0
NOV. 10...	11.2	90	2.8	5400	6	2.5	0	0
DEC. 16...	11.0	77	3.0	800	1	-.5	4	0
FEB. 03...	10.6	75	--	300	13	-7.0	4	0
MAR. 17...	11.0	77	2.0	9700	29	3.0	4	0
APR. 13...	13.6	98	1.8	6100	1	7.0	0	0
JUNE 03...	7.8	83	1.4	1500	26	23.5	0	0
JULY 28...	9.4	97	2.2	400	8	14.5	0	0
SEP. 14...	9.8	107	.6	2800	0	16.0	0	0

STREAMS TRIBUTARY TO LAKE SUPERIOR

04031000 BLACK RIVER NEAR BESSEMER, MICH.

LOCATION.--Lat 46°30'41", long 90°04'28", in NE¼ SE¼ sec.32, T.43 N., R.46 W., Gogebic County, temperature recorder at gaging station on right bank 450 ft downstream from bridge on county highway, 500 ft downstream from Powder Mill Creek, and 2.5 miles north of Bessemer.

DRAINAGE AREA.--200 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1954 to July 1971 (discontinued).

EXTREMES, 1970-71:
Water temperatures: Maximum, 24.0°C July 8; minimum, freezing point on many days during December to April.
Period of record:
Water temperatures (1954-71): Maximum 31.0°C about July 2, 1966 (recorded range); minimum, freezing point on many days during winter period.

REMARKS.--Complete ice cover during winter period. No temperature record Oct. 1-6, sensing probe not recording true temperature; Oct. 22-26, pen not marking; July 28 to Sept. 30, thermograph removed.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	6.5	6.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
2	---	---	6.0	5.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
3	---	---	5.5	5.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	---	---	5.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
5	---	---	5.0	4.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	---	---	5.0	4.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
7	13.0	11.0	5.0	4.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
8	11.0	10.5	4.5	4.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
9	12.5	10.5	5.0	4.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
10	11.5	8.0	6.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
11	8.5	7.5	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	10.0	8.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	10.5	8.5	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	9.5	8.0	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	8.0	6.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	8.0	5.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	9.0	5.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	9.5	6.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	9.5	6.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	9.0	7.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	10.0	8.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	---	---	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	---	---	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	---	---	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	---	---	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	---	---	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	10.5	9.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	10.0	7.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	7.5	7.0	1.5	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	7.0	7.0	2.0	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	7.0	6.0	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	---	---	6.5	1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	6.0	6.0	14.0	12.5	19.0	17.0	---	---	---	---
2	0.0	0.0	8.0	5.0	15.0	13.0	19.5	16.5	---	---	---	---
3	0.0	0.0	10.0	6.0	19.0	14.0	21.0	18.0	---	---	---	---
4	0.0	0.0	9.5	8.0	20.0	17.0	20.5	19.5	---	---	---	---
5	0.0	0.0	8.0	7.0	22.5	19.0	21.5	18.0	---	---	---	---
6	0.0	0.0	11.0	6.5	22.5	19.5	23.0	18.5	---	---	---	---
7	0.0	0.0	13.0	8.5	22.0	15.5	22.5	20.0	---	---	---	---
8	0.0	0.0	13.0	10.5	17.5	14.0	24.0	19.5	---	---	---	---
9	0.0	0.0	13.5	9.5	17.5	13.5	23.0	18.0	---	---	---	---
10	0.5	0.0	15.5	11.0	18.0	16.0	22.0	19.0	---	---	---	---
11	0.0	0.0	15.0	10.5	20.5	16.5	21.5	18.0	---	---	---	---
12	0.0	0.0	11.5	8.5	23.0	19.0	20.5	17.5	---	---	---	---
13	1.0	0.0	14.0	10.0	23.0	19.5	17.5	16.5	---	---	---	---
14	1.5	0.5	15.0	11.0	23.0	19.0	18.5	15.5	---	---	---	---
15	2.5	0.5	16.5	13.5	22.5	19.0	20.0	17.0	---	---	---	---
16	3.0	1.0	17.0	13.5	23.5	18.5	20.0	18.0	---	---	---	---
17	3.5	1.5	16.0	14.0	23.0	20.0	19.5	16.5	---	---	---	---
18	4.0	2.0	14.5	10.5	23.0	20.0	18.0	16.0	---	---	---	---
19	4.0	3.5	10.5	9.0	21.5	18.5	19.0	15.0	---	---	---	---
20	6.5	4.0	9.0	7.5	20.0	17.5	20.5	17.0	---	---	---	---
21	6.5	4.5	12.0	7.5	22.0	16.0	20.0	17.5	---	---	---	---
22	7.0	5.0	14.5	10.5	23.0	18.5	18.0	16.5	---	---	---	---
23	7.0	5.5	14.0	12.0	22.5	18.5	18.5	16.5	---	---	---	---
24	6.0	4.5	12.0	10.5	18.5	16.5	19.0	16.0	---	---	---	---
25	7.0	5.5	10.5	8.5	17.5	16.0	19.5	18.0	---	---	---	---
26	7.5	6.0	10.5	8.0	19.5	15.0	18.5	16.5	---	---	---	---
27	7.0	6.0	13.0	9.0	24.0	17.5	17.0	15.5	---	---	---	---
28	6.0	5.0	15.5	11.0	25.5	21.5	---	---	---	---	---	---
29	7.0	5.0	17.0	14.0	22.5	19.0	---	---	---	---	---	---
30	7.0	6.0	17.0	14.0	19.0	18.0	---	---	---	---	---	---
31	---	---	14.0	12.5	---	---	---	---	---	---	---	---
MONTH	7.5	0.0	17.0	5.0	25.5	12.5	24.0	15.0	---	---	---	---
YEAR	29.5	0.0										

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04043250 SALMON TROUT RIVER NEAR BIG BAY, MICHIGAN

LOCATION.--Lat 46°50'56", long 087°47'57", in NW¼ NE¼ sec.1, T.51 N., R.28 W., Marquette County, at bridge on County Road 550, 3.5 miles NE of Big Bay, 3.1 miles above mouth.

DRAINAGE AREA.--37.8 sq mi.

PERIOD OF RECORD.--Water temperature: June 1971 to August 1971.

EXTREMES, June to August 1971:
Water temperatures: Maximum, 24.0°C Aug. 9, 10.

REMARKS.--Maximum-minimum water temperatures read daily during summer months by personel of Huron Mountain Club.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCTOBER MAX	OCTOBER MIN	NOVEMBER MAX	NOVEMBER MIN	DECEMBER MAX	DECEMBER MIN	JANUARY MAX	JANUARY MIN	FEBRUARY MAX	FEBRUARY MIN	MARCH MAX	MARCH MIN
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	APRIL MAX	APRIL MIN	MAY MAX	MAY MIN	JUNE MAX	JUNE MIN	JULY MAX	JULY MIN	AUGUST MAX	AUGUST MIN	SEPTEMBER MAX	SEPTEMBER MIN
1	---	---	---	---	13.5	13.0	16.5	14.5	18.0	15.5	---	---
2	---	---	---	---	16.0	15.0	15.5	12.0	11.0	10.5	---	---
3	---	---	---	---	13.5	13.0	18.0	14.5	12.0	11.0	---	---
4	---	---	---	---	16.0	15.0	16.5	14.5	12.0	9.0	---	---
5	---	---	---	---	14.0	13.5	15.5	15.0	13.0	7.0	---	---
6	---	---	---	---	14.5	5.5	16.5	15.0	18.5	13.0	---	---
7	---	---	---	---	16.0	11.5	17.0	15.5	18.0	14.5	---	---
8	---	---	---	---	10.5	9.5	16.5	14.5	15.5	13.0	---	---
9	---	---	---	---	11.0	9.0	16.5	14.5	24.0	18.0	---	---
10	---	---	---	---	10.5	9.5	12.0	11.0	24.0	19.5	---	---
11	---	---	---	---	18.5	13.0	11.0	11.0	19.5	12.0	---	---
12	---	---	---	---	20.0	9.0	18.0	14.5	16.5	14.5	---	---
13	---	---	---	---	16.5	9.0	16.5	14.5	11.0	9.5	---	---
14	---	---	---	---	18.5	13.0	18.0	12.0	10.0	9.0	---	---
15	---	---	---	---	15.5	13.0	16.5	14.5	9.5	8.5	---	---
16	---	---	---	---	18.5	13.0	15.5	15.0	14.5	12.0	---	---
17	---	---	---	---	16.5	9.5	18.0	11.0	16.5	15.0	---	---
18	---	---	---	---	16.5	6.0	10.0	9.0	18.0	15.5	---	---
19	---	---	---	---	14.5	5.5	12.0	8.0	16.5	15.0	---	---
20	---	---	---	---	15.0	6.0	14.0	12.0	13.0	7.0	---	---
21	---	---	---	---	18.5	13.0	15.5	15.5	7.0	5.5	---	---
22	---	---	---	---	18.0	13.0	16.5	15.0	11.0	10.0	---	---
23	---	---	---	---	14.5	13.5	13.5	13.0	10.0	9.5	---	---
24	---	---	---	---	19.0	11.0	10.0	9.0	12.0	7.0	---	---
25	---	---	---	---	15.0	11.0	15.5	14.5	10.0	9.0	---	---
26	---	---	---	---	9.0	5.5	14.5	13.5	12.0	11.0	---	---
27	---	---	---	---	14.5	11.0	13.5	10.5	16.5	14.5	---	---
28	---	---	---	---	16.5	14.5	18.0	13.5	11.0	9.0	---	---
29	---	---	---	---	18.5	16.5	10.5	9.5	13.0	10.0	---	---
30	---	---	---	---	15.5	15.5	8.5	7.0	13.5	10.0	---	---
31	---	---	---	---		---	8.0	6.5	14.0	11.5	---	---
MONTH	---	---	---	---	20.0	5.5	18.0	6.5	24.0	5.5	---	---
YEAR	0.0	5.5										

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04045580 ST. MARYS RIVER ABOVE SAULT STE. MARIE, MICH.

LOCATION.--Lat 46°29'29", long 84°25'17", in NW1/4 sec.10, T.47 N., R.1 W., Chippewa County, at Sault Ste. Marie municipal raw-water intake at Big Point, 1 mile west of Sault Ste. Marie.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1971.

REMARKS.--Station operated as part of the Environmental Protection Agency (EPA) national network. Weekly chemical analyses furnished by City of Sault Ste. Marie Water Department. Radiochemical and trace element analyses by the EPA. Station operated by the former Federal Water Quality Administration (now EPA) during the period November 1959 to September 1969. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)
OCT.									
05...	0800	--	--	41	--	2.0	--	--	.2
12...	0800	--	--	41	--	1.0	--	--	--
19...	0800	--	--	41	--	1.0	--	--	--
26...	0840	--	--	41	--	1.0	--	--	--
NOV.									
02...	0800	--	--	41	--	1.0	--	--	.3
09...	0800	--	--	41	--	1.0	--	--	--
16...	0750	--	--	41	--	1.0	--	--	--
23...	0830	--	--	42	--	1.0	--	--	--
30...	0810	--	--	41	--	1.0	--	--	--
DEC.									
07...	0800	--	--	41	4.4	1.0	--	--	.4
14...	0735	--	--	41	--	1.0	--	--	--
21...	0730	--	--	41	--	1.0	--	--	--
28...	0730	--	--	42	--	1.0	--	--	--
JAN.									
04...	0750	.8	.6	41	4.0	1.0	.00	.02	.4
11...	0810	--	--	48	--	1.0	--	--	--
18...	0730	--	--	38	--	1.0	--	--	--
25...	0830	--	--	42	--	1.0	--	--	--
FEB.									
01...	1530	--	--	41	--	1.0	--	--	.2
08...	0710	--	--	42	--	1.0	--	--	--
15...	0730	--	--	41	--	1.0	--	--	--
22...	0755	--	--	43	--	1.0	--	--	--
MAR.									
01...	0745	--	--	42	4.0	1.0	.01	.00	.2
08...	0735	--	--	42	--	1.0	--	--	--
15...	0730	--	--	42	--	1.0	--	--	--
22...	0805	--	--	42	--	1.0	--	--	--
29...	0720	--	--	42	--	1.0	--	--	--
APR.									
05...	0750	--	--	41	--	1.0	--	--	.4
12...	0810	--	--	--	--	--	--	--	--
19...	0725	--	--	40	--	1.0	--	--	--
26...	0730	--	--	37	--	1.0	--	--	--
MAY									
03...	0745	--	--	41	--	1.0	--	--	.3
10...	0715	--	--	40	--	1.0	--	--	--
17...	0730	--	--	40	--	1.0	--	--	--
24...	0740	--	--	39	--	1.0	--	--	--
31...	1445	--	--	40	--	1.0	--	--	--
JUNE									
07...	0800	--	--	39	--	1.0	--	--	--
14...	0800	--	--	39	--	1.0	--	--	--
21...	0730	--	--	39	--	1.0	--	--	--
28...	0800	1.2	.2	39	11	1.0	.04	.02	.3
JULY									
05...	0720	--	--	40	--	1.0	--	--	--
12...	0700	--	--	41	--	1.0	--	--	--
19...	0645	--	--	42	--	1.0	--	--	--
26...	0650	--	--	41	--	1.0	--	--	--
AUG.									
02...	0735	--	--	40	--	1.0	--	--	.2
09...	0615	--	--	41	--	1.0	--	--	--
16...	0800	--	--	41	--	1.0	--	--	--
23...	0615	--	--	42	--	1.0	--	--	--
30...	0730	--	--	40	--	1.0	--	--	--
SEP.									
07...	0750	--	--	40	2.4	1.0	.06	.00	.2
13...	0800	--	--	40	--	1.0	--	--	--
20...	0745	--	--	39	--	1.0	--	--	--
27...	0740	--	--	42	--	2.0	--	--	--

STREAMS TRIBUTARY TO ST. MARYS RIVER

04045580 ST. MARYS RIVER ABOVE SAULT STE. MARIE, MICH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	TOTAL NONFILTRABLE RESIDUE (MG/L)	TOTAL RESIDUE (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT.									
05...	.000	.000	--	--	--	52	56	7.7	13.0
12...	--	--	--	--	--	50	--	7.7	14.8
19...	--	--	--	--	--	50	56	7.7	13.1
26...	--	--	--	--	--	50	56	7.7	13.9
NOV.									
02...	.030	.020	--	--	--	50	56	7.5	11.5
09...	--	--	--	--	--	50	56	7.6	11.9
16...	--	--	--	--	--	50	56	7.6	9.5
23...	--	--	--	--	--	50	57	7.6	8.4
30...	--	--	--	--	--	50	56	7.6	7.0
DEC.									
07...	.180	.130	--	--	--	50	55	7.6	4.8
14...	--	--	--	--	--	50	56	7.5	4.7
21...	--	--	--	--	--	49	56	7.5	3.9
28...	--	--	--	--	--	51	56	7.5	2.8
JAN.									
04...	.000	.000	84	0	84	50	56	7.4	2.9
11...	--	--	--	--	--	50	56	7.4	2.0
18...	--	--	--	--	--	48	57	7.5	1.5
25...	--	--	--	--	--	50	57	7.5	2.0
FEB.									
01...	.020	.020	--	--	--	50	58	7.5	1.5
08...	--	--	--	--	--	50	58	7.4	1.8
15...	--	--	--	--	--	50	57	7.5	2.2
22...	--	--	--	--	--	50	58	7.4	2.3
MAR.									
01...	.010	.000	46	8	54	50	58	7.4	1.6
08...	--	--	--	--	--	50	58	7.4	1.6
15...	--	--	--	--	--	45	58	7.4	2.9
22...	--	--	--	--	--	51	58	7.4	2.2
29...	--	--	--	--	--	51	56	7.4	2.6
APR.									
05...	.000	.000	--	--	--	52	57	7.3	2.7
12...	--	--	--	--	--	--	57	--	--
19...	--	--	--	--	--	50	55	7.4	2.3
26...	--	--	--	--	--	46	51	7.4	2.6
MAY									
03...	.010	.000	--	--	--	46	54	7.4	3.5
10...	--	--	--	--	--	47	55	7.4	4.9
17...	--	--	--	--	--	48	52	7.4	6.6
24...	--	--	--	--	--	49	56	7.6	6.5
31...	--	--	--	--	--	48	55	7.5	7.9
JUNE									
07...	--	--	--	--	--	47	55	7.6	8.5
14...	--	--	--	--	--	48	56	7.6	8.4
21...	--	--	--	--	--	48	56	7.5	11.2
28...	.040	.000	58	38	56	48	56	7.5	14.4
JULY									
05...	--	--	--	--	--	48	56	7.7	17.0
12...	--	--	--	--	--	47	54	7.8	19.1
19...	--	--	--	--	--	48	56	7.8	18.4
26...	--	--	--	--	--	49	53	7.7	18.5
AUG.									
02...	.000	.000	--	--	--	45	53	7.7	18.5
09...	--	--	--	--	--	49	54	7.7	17.8
16...	--	--	--	--	--	49	54	7.7	18.0
23...	--	--	--	--	--	49	53	7.8	18.4
30...	--	--	--	--	--	48	54	7.8	18.1
SEP.									
07...	.000	.000	62	56	158	47	56	7.7	17.0
13...	--	--	--	--	--	47	54	7.7	17.5
20...	--	--	--	--	--	48	54	7.8	17.0
27...	--	--	--	--	--	48	54	7.7	16.2

04045580 ST. MARYS RIVER ABOVE SAULT STE. MARIE, MICH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	DELAYED COLIFORM (COLONIES PER 100 ML)	PHENOLS (UG/L)	CYANIDE (CN) (MG/L)	DISSOLVED SELENIUM (SE) (UG/L)
OCT.									
05...	0	2	10.5	102	3	30	--	--	--
12...	0	--	10.4	104	4	21	--	--	--
19...	0	--	10.6	103	4	17	--	--	--
26...	0	--	10.5	103	3	13	--	--	--
NOV.									
02...	0	0	11.0	106	4	35	0	--	--
09...	0	--	11.3	109	2	20	--	--	--
16...	0	--	12.0	108	3	7	--	--	--
23...	0	--	11.7	101	3	160	--	--	--
30...	0	--	11.9	100	2	5	--	--	--
DEC.									
07...	0	2	13.4	107	3	49	0	--	--
14...	0	--	13.1	105	2	4	--	--	--
21...	0	--	13.3	102	4	3	--	--	--
28...	0	--	13.7	104	5	1	--	--	--
JAN.									
04...	0	2	13.3	101	5	0	0	.02	9
11...	0	--	13.5	101	3	0	--	--	--
18...	0	--	13.7	104	5	0	--	--	--
25...	0	--	13.9	104	5	0	--	--	--
FEB.									
01...	0	1	13.8	104	4	0	1	--	--
09...	0	--	13.9	105	5	0	--	--	--
15...	0	--	13.7	102	3	1	--	--	--
22...	0	--	13.7	102	1.6	1	--	--	--
MAR.									
01...	0	7	13.7	104	2	3	0	--	--
08...	0	--	13.8	104	3	1	--	--	--
15...	0	--	13.7	104	3	1	--	--	--
22...	0	--	13.7	102	3	9	--	--	--
29...	0	--	13.5	102	4	1	--	--	--
APR.									
05...	0	1	14.1	107	5	0	0	--	--
12...	--	--	--	--	--	4	--	--	--
19...	0	--	14.3	107	5	5	--	--	--
26...	0	--	13.9	105	4	0	--	--	--
MAY									
03...	0	1	14.4	111	3	1	2	--	--
10...	0	--	14.1	113	3	1	--	--	--
17...	0	--	12.5	104	4	1	--	--	--
24...	0	--	13.9	116	4	7	--	--	--
31...	0	--	13.5	128	3	56	--	--	--
JUNE									
07...	0	--	14.1	127	2	5	--	--	--
14...	0	--	11.5	99	3	4	--	--	--
21...	0	--	13.0	120	7	17	--	--	--
28...	0	1	11.0	109	7	43	3	.00	7
JULY									
05...	0	--	11.9	126	2	9	--	--	--
12...	0	--	11.1	122	5	110	--	--	--
19...	0	--	11.5	125	4	18	--	--	--
26...	0	--	11.3	123	3	5	--	--	--
AUG.									
02...	--	0	10.3	112	4	40	0	--	--
09...	0	--	10.6	125	4	7	--	--	--
16...	0	--	10.0	109	4	34	--	--	--
23...	0	--	10.2	111	3	8	--	--	--
30...	0	--	10.1	110	6	27	--	--	--
SEP.									
07...	0	0	10.7	114	3	8	1	--	--
13...	0	--	10.0	108	4	11	--	--	--
20...	0	--	10.1	107	2	44	--	--	--
27...	0	--	10.1	104	4	27	--	--	--

04045590 ST. MARYS RIVER BELOW SAULT STE. MARIE, MICH.

LOCATION.—Lat 46°29'11", long 84°18'07", in NE¼ sec.9, T.47 N., R.1 E., Chippewa County, at right bank at ferry crossing to Sugar Island, 1.3 miles southeast of Sault, Ste. Marie.

DRAINAGE AREA.—80,900 sq mi, approximately.

PERIOD OF RECORD.—Chemical analyses: October 1969 to September 1971.

REMARKS.—Samples collected monthly as part of the Environmental Protection Agency national network. Data prefaced by the letter "E" are estimates based on field analyses. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	ALKALINITY AS CACO3 (MG/L)	CHLORIDE (CL) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
OCT. 21...	1500	--	E15	--	--	.30	.010	.010
DEC. 02...	0900	43	1.0	.00	.00	.30	.000	.000
JAN. 12...	0920	--	E5.0	--	--	.20	.020	.020
FEB. 22...	1530	--	E5.0	--	--	.20	.000	.000
MAR. 31...	1500	46	1.0	.00	.01	.30	.030	.010
MAY 26...	1630	--	E25	--	--	.30	.020	.010
JUNE 21...	1400	44	3.0	.05	.00	.20	.000	.000
AUG. 05...	0900	--	E15	--	--	.20	.020	.010
31...	1700	44	66	.00	.01	.20	.010	.000

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	TOTAL NONFILTRABLE RESIDUE (MG/L)	TOTAL RESIDUE (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)
OCT. 21...	--	--	--	E50	97	7.1	11.5	1.0
DEC. 02...	66	0	66	46	99	7.2	5.0	2.0
JAN. 12...	--	--	--	E40	97	7.8	.0	1.0
FEB. 22...	--	--	--	E40	100	7.2	.5	.0
MAR. 31...	57	9	66	49	100	7.3	.0	.0
MAY 26...	--	--	--	E50	96	7.4	4.5	3.0
JUNE 21...	55	6	61	50	98	7.4	10.5	3.0
AUG. 05...	--	--	--	E50	100	7.3	16.0	1.0
31...	86	0	86	44	96	7.6	17.0	.0

DATE	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION (%)	BIOCHEMICAL OXYGEN DEMAND (MG/L)	IMMEDIATE COLIFORM (COLONIES PER 100 ML)	PHENOLS (UG/L)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)	OIL-GREASE (SEVERITY)
OCT. 21...	10.0	96	1.4	160	0	13.5	0	1
DEC. 02...	11.3	91	2.8	62	11	2.5	0	1
JAN. 12...	12.8	90	3.8	82	16	20.9	2	1
FEB. 22...	12.0	86	1.4	58	10	1.5	4	0
MAR. 31...	12.1	85	2.8	818	17	5.0	4	0
MAY 26...	12.1	97	1.2	130	0	12.0	0	0
JUNE 21...	10.0	92	2.2	40	16	18.5	0	0
AUG 05...	10.0	103	.8	200	2	17.0	0	0
31...	10.1	107	.6	35	0	21.0	0	0

04046000 BLACK RIVER NEAR GARNET, MICH.

LOCATION.--Lat 46°07'09", long 85°21'55", in SE¼ sec.13, T.43 N., R.9 W., Mackinac County, temperature recorder at gaging station on right bank, 10 feet upstream from highway bridge, 15 feet downstream from Peters Creek entering from the right, 3.5 miles upstream from Lake Michigan, and 4 miles southwest of Garnet.

DRAINAGE AREA.--28 sq mi. approximately.

PERIOD OF RECORD.--Water temperatures: October 1951 to September 1971

EXTREMES, 1970-71:
Water temperatures: Maximum, 16.0°C June 28, 29; minimum, freezing point on several days during December to February.
Period of record:
Water temperatures (1951-71): Maximum, 19.5°C July 21, 22, 1952; minimum, freezing point on many days during winter period.

REMARKS.--Intermittent periods of ice effect during winter period. Recorder stopped Nov. 28 to Dec. 1, range in temperature 2.0°C; Jan. 9-12, range in temperature 0.5°C; Feb. 18-23, range in temperature 0.0°C to 1.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	9.0	8.5	8.0	---	---	1.0	0.5	0.5	0.5	2.0	1.5
2	9.5	9.0	8.0	7.5	2.0	1.5	1.0	0.5	0.5	0.5	1.5	1.5
3	9.5	9.0	7.5	7.5	1.5	1.0	1.0	1.0	0.5	0.5	1.5	1.5
4	9.0	8.5	7.5	7.0	1.0	0.5	1.0	0	0.5	0.5	1.5	1.5
5	9.0	8.0	7.0	7.0	0.5	0.5	0.5	0.5	0.5	0.5	2.0	1.5
6	10.5	9.0	7.0	7.0	0.5	0.5	0.5	0.5	1.0	0.5	2.5	2.0
7	11.5	10.5	7.0	6.5	0.5	0.5	0.5	0.5	0.5	0.5	2.5	1.5
8	12.0	11.5	6.5	6.0	0.5	0.5	0.5	0.5	0.5	0.5	1.5	1.5
9	12.5	12.0	6.5	6.0	0.5	0.5	---	---	0.5	0.5	1.5	1.5
10	12.5	11.0	7.0	6.5	0.5	0.5	---	---	1.0	0.5	2.0	1.5
11	11.0	9.5	7.0	7.0	0.5	0.5	---	---	1.0	0.5	2.0	1.5
12	10.0	9.5	7.0	7.0	0.5	0.5	---	---	0.5	0	2.5	1.5
13	10.0	9.5	7.0	6.0	0.5	0.5	0.5	0.5	0	0	3.0	2.0
14	9.5	9.0	6.0	5.0	0.5	0.5	1.0	0.5	0	0	3.0	2.5
15	9.0	8.0	5.0	4.5	0.5	0.5	1.0	1.0	0.5	0	3.0	2.0
16	8.0	8.0	4.5	4.5	1.0	0.5	1.0	1.0	0.5	0.5	2.5	2.0
17	8.0	7.5	4.5	4.5	1.0	0.5	1.0	1.0	1.0	0.5	2.0	2.0
18	7.5	7.5	5.0	4.5	1.0	1.0	1.0	0.5	---	---	2.5	2.0
19	7.5	7.5	5.5	5.0	1.0	0.5	0.5	0.5	---	---	2.5	2.5
20	7.5	7.5	5.5	5.5	0.5	0	1.0	0.5	---	---	3.0	2.5
21	8.0	7.5	5.5	5.0	0	0	1.0	1.0	---	---	2.5	2.0
22	8.5	8.0	5.0	4.0	0	0	1.0	0.5	---	---	2.5	2.0
23	9.0	8.5	4.0	3.0	0	0	1.0	0.5	---	---	3.0	2.0
24	9.0	9.0	3.0	3.0	0.5	0	0.5	0.5	2.5	2.0	2.5	2.0
25	9.5	9.0	3.0	2.5	0.5	0.5	1.0	0.5	2.5	2.0	2.0	2.0
26	9.5	9.5	2.5	2.5	0.5	0.5	0.5	0.5	2.5	2.0	3.0	2.0
27	9.5	9.5	2.5	2.5	0.5	0.5	0.5	0.5	2.5	1.5	3.0	2.5
28	9.5	9.5	---	---	0.5	0.5	0.5	0.5	2.0	1.5	2.5	2.5
29	9.5	9.5	---	---	0.5	0.5	0.5	0.5	---	---	3.0	3.0
30	9.5	8.0	---	---	0.5	0.5	0.5	0.5	---	---	3.5	2.5
31	9.5	8.5	---	---	0.5	0.5	0.5	0.5	---	---	4.0	3.0
MONTH	12.5	7.5	8.5	2.5	2.0	0	1.0	0	2.5	0	4.0	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	3.0	7.5	7.0	11.5	9.0	14.0	13.5	13.5	12.5	13.5	12.5
2	3.0	2.5	8.0	6.5	12.5	11.5	14.0	12.0	14.0	13.0	13.5	13.0
3	2.5	2.5	8.5	7.5	13.0	11.5	14.0	12.0	14.0	13.0	14.0	13.5
4	2.5	2.5	8.5	8.0	14.5	12.5	13.5	12.0	13.0	12.0	14.5	14.0
5	3.0	2.5	9.5	8.5	14.5	13.0	14.0	13.0	13.0	12.0	14.5	14.5
6	3.5	2.5	10.5	9.0	15.0	12.5	15.0	12.5	13.5	11.5	14.5	14.5
7	4.0	2.5	10.5	9.5	15.0	13.5	14.5	12.5	14.0	12.0	14.5	14.0
8	3.5	2.5	11.0	9.5	14.0	12.5	13.5	12.5	14.5	12.5	14.0	13.5
9	3.0	3.0	12.0	10.0	13.5	12.5	14.0	11.5	14.5	13.0	13.5	12.5
10	3.5	2.5	13.0	10.5	14.0	12.0	13.5	12.0	14.5	13.5	13.0	13.0
11	3.5	2.5	13.0	11.5	14.0	12.5	14.0	12.0	14.0	13.5	13.0	13.0
12	3.5	2.5	12.0	9.5	14.0	12.5	13.0	11.5	13.5	12.5	13.0	12.5
13	3.0	2.5	10.5	8.5	14.5	13.0	14.0	13.0	13.5	13.0	12.5	12.0
14	3.0	2.5	11.0	9.0	14.5	13.0	14.0	12.5	13.5	13.5	12.0	11.5
15	2.5	2.5	12.0	10.0	15.5	13.0	14.0	12.0	13.5	12.5	11.5	11.5
16	3.0	2.5	13.0	10.5	15.5	13.5	13.5	12.5	14.0	12.0	11.5	11.0
17	3.0	2.5	13.0	10.5	15.5	13.5	13.0	11.5	13.5	12.5	11.0	11.0
18	5.0	3.0	11.5	11.5	15.0	13.5	13.0	11.5	13.5	12.5	11.0	10.5
19	6.0	4.0	12.5	11.5	14.5	13.0	13.5	11.5	13.5	13.0	10.5	10.5
20	6.0	5.5	12.5	11.0	14.0	13.5	13.5	11.5	14.0	13.0	10.5	10.5
21	6.0	4.5	11.0	9.5	15.0	13.0	14.0	12.0	14.0	13.0	10.5	10.0
22	6.5	4.5	12.0	10.0	14.5	12.5	14.0	13.0	14.0	13.0	10.5	10.5
23	6.5	5.5	12.0	11.0	14.0	12.5	13.5	12.5	13.0	12.0	10.5	10.5
24	5.5	3.5	11.0	9.5	14.0	12.5	14.0	12.0	12.5	11.5	11.0	11.0
25	5.0	4.0	9.5	9.5	14.0	12.5	14.0	12.5	11.5	11.5	11.0	11.0
26	7.0	5.5	10.0	9.0	14.0	12.0	14.0	12.5	11.5	11.5	11.0	11.0
27	7.0	6.5	12.0	9.0	14.0	12.5	12.5	12.0	12.5	11.5	11.5	11.0
28	6.5	6.0	12.5	10.5	16.0	13.5	14.0	11.5	13.5	12.5	12.5	11.5
29	7.5	6.0	13.5	11.5	16.0	14.0	14.0	11.5	13.5	13.0	13.0	12.5
30	7.5	6.0	13.5	12.5	15.5	14.0	14.0	11.5	13.5	13.5	13.0	13.0
31	---	---	12.0	10.0	---	---	13.0	11.5	13.5	12.5	---	---
MONTH	7.5	2.5	13.5	6.5	16.0	9.0	15.0	11.5	14.5	11.5	14.5	10.0
YEAR	16.0	0										

04058000 MIDDLE BRANCH ESCANABA RIVER NEAR ISHPEMING, MICH.

LOCATION.—Lat 46°23'40", long 87°45'30", in NW¼ SW¼ sec.12, T.46 N., R.28 W., Marquette County, temperature recorder at gaging station on left bank 0.5 mile downstream from County Highway 581, 6 miles southwest of Ishpeming, and 10 miles east of Republic.
DRAINAGE AREA.—128 sq mi.
PERIOD OF RECORD.—Water temperatures: August 1961 to September 1971.
EXTREMES, 1970-71:
Water temperatures: Maximum, 22.0°C June 28, 29; minimum, freezing point on many days during November to April.
Period of record:
Water temperatures (1961-71): Maximum 25.5 July 1, 2, 1963, July 21, 1964; minimum, freezing point on many days during winter period.
REMARKS.—Complete ice cover during winter period. No temperature record Apr. 11-19, July 14 to Sept. 30, due to malfunction of recorder.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1970

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	6.5	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	7.0	6.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	7.0	6.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	6.5	6.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	6.0	5.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	5.5	5.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	7.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	7.5	7.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	7.5	7.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	7.5	6.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	6.5	5.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	5.5	5.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	5.5	5.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	5.0	5.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	5.0	4.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	4.5	4.0	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	7.5	1.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	5.5	5.5	12.0	10.0	20.5	19.0	---	---	---	---
2	0.0	0.0	5.5	5.5	13.0	12.0	19.0	17.0	---	---	---	---
3	0.0	0.0	6.5	5.5	14.5	12.5	19.0	17.0	---	---	---	---
4	0.0	0.0	7.0	6.5	16.0	14.0	19.0	18.5	---	---	---	---
5	0.0	0.0	7.5	7.5	16.0	16.0	20.0	19.0	---	---	---	---
6	0.0	0.0	8.0	7.0	17.5	16.0	20.5	19.0	---	---	---	---
7	0.0	0.0	10.0	8.0	17.5	16.5	20.5	19.0	---	---	---	---
8	0.0	0.0	11.0	9.5	16.5	14.0	21.0	19.0	---	---	---	---
9	0.0	0.0	11.5	10.5	14.0	13.5	21.0	19.0	---	---	---	---
10	0.0	0.0	12.0	10.5	14.5	13.0	20.5	18.5	---	---	---	---
11	---	---	11.5	10.5	15.0	14.0	19.5	17.0	---	---	---	---
12	---	---	10.5	9.0	17.0	15.0	19.5	17.0	---	---	---	---
13	---	---	9.0	7.5	18.0	17.0	17.5	17.5	---	---	---	---
14	---	---	11.0	8.5	18.0	16.5	---	---	---	---	---	---
15	---	---	12.0	10.5	18.0	16.5	---	---	---	---	---	---
16	---	---	13.0	11.5	18.0	16.0	---	---	---	---	---	---
17	---	---	13.0	11.5	19.0	17.0	---	---	---	---	---	---
18	---	---	12.0	11.0	19.0	18.5	---	---	---	---	---	---
19	---	---	11.0	10.0	18.5	18.5	---	---	---	---	---	---
20	5.0	4.0	10.0	9.0	18.5	18.5	---	---	---	---	---	---
21	5.0	5.0	10.5	8.0	18.5	18.5	---	---	---	---	---	---
22	5.5	5.5	12.0	9.0	16.0	17.5	---	---	---	---	---	---
23	5.5	4.5	12.0	11.0	18.0	17.0	---	---	---	---	---	---
24	4.0	4.0	11.0	10.0	18.0	17.0	---	---	---	---	---	---
25	4.0	4.0	10.0	9.0	17.5	16.5	---	---	---	---	---	---
26	5.0	4.5	9.5	9.0	18.0	15.5	---	---	---	---	---	---
27	5.0	5.0	11.0	9.5	20.0	17.0	---	---	---	---	---	---
28	5.0	4.5	12.5	11.0	22.0	19.5	---	---	---	---	---	---
29	4.5	4.5	14.0	12.5	22.0	21.0	---	---	---	---	---	---
30	5.0	4.5	14.0	13.5	21.0	21.0	---	---	---	---	---	---
31	---	---	13.5	11.5	---	---	---	---	---	---	---	---
MONTH	---	---	14.0	5.5	22.0	10.0	---	---	---	---	---	---
YEAR	22.0	0.0										

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04058200 SCHWEITZER CREEK NEAR PALMER, MICH.

LOCATION.—Lat 46°24'40", long 87°37'27", in SW¼ sec.1, T.46 N., R.27 W., Marquette County, temperature recorder at gaging station on right bank 10 ft upstream from highway bridge, 2.5 miles southwest of Palmer.

DRAINAGE AREA.—23.6 sq mi.

PERIOD OF RECORD.—Water temperatures: August 1961 to September 1971 (discontinued).

DRAINAGE AREA.—23.6 sq mi.

EXTREMES, 1970-71:

Water temperatures: Maximum, 23.0°C July 1; minimum, freezing point on many days during January and February.

Period of record:

Water temperatures (1961-71): Maximum, 25.0°C July 15, 16, 1968; minimum, freezing point on many days during winter period.

REMARKS.—Recorder stopped Feb. 26 to Mar. 1, range in temperature 1.0°C to 2.0°C; Mar. 25 to Apr. 5, range in temperature 1.5°C to 4.5°C; July 12-14, range in temperature 12.5°C to 21°C. No temperature record Sept. 16-30, thermograph removed. Since August 1962, flow regulated by Schweitzer Creek Reservoir, 1 mile above station. Additional analyses for this site are on page 123.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER. 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	11.0	7.5	7.5	3.5	2.5	1.0	0.5	0	0	---	---
2	13.0	12.5	7.5	7.0	3.5	2.0	1.0	1.0	0	0	1.0	0
3	12.5	11.0	7.0	7.0	2.0	1.5	1.0	0.5	0	0	1.0	0.5
4	11.0	10.0	7.0	6.5	1.5	1.5	0.5	0.5	0	0	1.0	0
5	12.0	10.5	6.5	6.0	1.5	1.5	0.5	0.5	0	0	1.0	0
6	12.5	12.0	6.0	5.5	1.5	1.5	0.5	0.5	0	0	1.5	1.0
7	13.0	12.5	5.5	5.5	1.5	1.0	0.5	0	0	0	2.0	1.5
8	13.0	12.0	6.0	5.0	1.5	1.0	0	0	0	0	1.5	0.5
9	12.5	12.5	7.0	6.0	1.5	1.5	0	0	0	0	1.0	0.5
10	12.5	10.0	7.0	7.0	1.5	1.5	0	0	0	0	1.5	0.5
11	10.0	9.0	7.0	6.5	1.5	1.0	0	0	0	0	1.5	0.5
12	10.5	10.0	6.5	6.5	1.0	1.0	0	0	0	0	2.0	1.5
13	11.0	9.0	6.5	5.0	1.0	1.0	0	0	0	0	3.0	2.0
14	10.5	8.5	5.0	4.5	1.0	1.0	0	0	0	0	3.0	2.5
15	8.5	7.5	4.5	4.5	1.0	1.0	0	0	0	0	2.5	1.0
16	7.5	7.0	4.5	4.5	1.5	1.0	0	0	0.5	0	2.0	1.0
17	8.0	6.5	5.5	4.5	2.0	1.5	0	0	1.0	0.5	2.5	1.0
18	8.0	7.0	5.5	5.5	2.0	2.0	0	0	1.0	0.5	3.0	1.0
19	8.0	6.5	5.5	5.0	2.0	1.5	0	0	1.0	0.5	3.0	2.5
20	8.5	7.5	5.0	4.5	1.5	1.0	0	0	1.0	0.5	3.0	1.5
21	9.0	8.5	4.5	3.5	1.0	1.0	0	0	2.0	1.0	3.5	1.5
22	9.0	8.5	3.5	2.0	1.0	0.5	0	0	2.0	1.0	3.5	1.5
23	9.5	9.0	2.0	1.5	0.5	0.5	0	0	2.0	1.5	3.5	2.0
24	9.5	9.5	1.5	1.5	0.5	0.5	0	0	2.0	1.0	3.5	1.5
25	9.5	9.5	1.5	1.5	0.5	0.5	0	0	2.0	1.0	---	---
26	9.5	9.0	2.0	1.5	0.5	0.5	0	0	---	---	---	---
27	9.5	9.0	2.0	1.5	0.5	0.5	0	0	---	---	---	---
28	9.0	9.0	2.0	2.0	0.5	0.5	0	0	---	---	---	---
29	9.0	8.0	2.5	2.0	0.5	0.5	0	0	---	---	---	---
30	9.0	7.0	2.5	2.0	0.5	0.5	0	0	---	---	---	---
31	8.0	7.5	---	---	1.0	0.5	0	0	---	---	---	---
MONTH	13.0	6.5	7.5	1.5	3.5	0.5	1.0	0	2.0	0	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	4.5	4.5	13.5	10.5	23.0	22.0	17.0	14.0	16.0	14.5
2	---	---	5.5	4.5	13.5	10.5	22.0	20.5	15.0	13.5	17.5	15.0
3	---	---	6.5	4.5	15.5	10.5	22.0	19.0	16.0	13.5	17.5	15.5
4	---	---	6.5	5.5	16.5	12.0	21.0	18.0	16.5	13.0	17.0	16.0
5	---	---	7.0	6.0	15.5	12.5	19.5	17.0	17.0	13.0	17.0	16.0
6	4.0	3.0	9.0	6.5	19.5	15.0	19.5	15.0	18.0	13.5	16.5	15.5
7	4.0	2.0	10.5	6.5	18.5	16.0	19.0	14.0	18.0	14.0	16.5	15.0
8	4.0	2.0	10.5	7.5	17.0	15.0	18.0	14.5	18.0	14.0	16.5	15.0
9	2.0	0.5	11.0	7.5	17.0	14.5	18.0	13.5	18.0	14.5	16.0	14.5
10	0.5	0.5	12.0	7.5	16.5	14.0	17.5	13.5	18.0	15.5	15.0	14.5
11	0	0	8.5	7.5	17.0	13.5	17.5	12.5	16.5	14.5	15.0	14.5
12	0	0	8.5	7.0	18.5	15.0	---	---	17.0	14.0	14.5	13.5
13	0	0	10.5	7.0	19.0	16.0	---	---	17.0	14.5	15.0	14.0
14	0.5	0	11.5	7.0	18.5	15.0	---	---	16.5	14.5	15.5	14.0
15	1.0	0.5	11.5	7.0	17.5	13.5	21.0	19.0	17.0	13.0	14.5	12.5
16	0.5	0.5	13.0	8.5	15.5	12.5	20.0	19.0	18.0	14.0	---	---
17	1.5	1.5	10.0	8.0	18.0	13.0	20.0	17.0	18.0	14.5	---	---
18	1.5	1.5	10.0	8.0	19.0	14.0	19.0	15.0	18.0	15.0	---	---
19	1.5	1.5	11.0	7.5	20.5	19.0	17.5	13.5	18.0	16.0	---	---
20	2.5	2.0	10.0	9.0	20.0	19.0	17.0	13.5	17.0	15.0	---	---
21	2.5	2.0	12.5	9.5	20.0	18.0	17.0	13.5	17.5	14.5	---	---
22	3.0	2.0	13.0	9.0	19.0	17.0	17.0	14.0	17.5	15.5	---	---
23	2.5	2.5	10.5	9.0	18.5	15.5	16.0	13.5	15.5	13.5	---	---
24	2.5	2.5	9.0	9.0	17.0	14.5	17.0	13.0	15.5	13.0	---	---
25	3.0	2.5	10.0	9.5	18.5	14.0	17.0	13.5	14.5	13.5	---	---
26	4.5	3.0	11.0	10.0	18.0	13.5	16.0	14.0	15.5	14.0	---	---
27	4.0	3.0	12.5	10.0	18.5	13.5	16.0	13.0	16.0	13.5	---	---
28	3.5	3.5	14.0	10.0	18.5	13.5	16.0	14.0	16.5	13.5	---	---
29	4.5	3.5	14.5	10.5	21.5	13.5	16.0	13.0	16.5	14.5	---	---
30	5.5	3.5	13.5	11.5	22.5	21.5	16.0	13.0	17.0	15.5	---	---
31	---	---	11.5	11.0	---	---	17.0	13.0	17.0	14.0	---	---
MONTH	5.5	0	14.5	4.5	22.5	10.5	23.0	12.5	18.0	13.0	---	---
YEAR	23.0	0										

04059500 FORD RIVER NEAR HYDE, MICH.

LOCATION.—Lat 45°45'20", long 87°12'05", in SW¼ sec.19, T.39 N., R.23 W., Delta County, temperature recorder at gaging station on right bank 40 ft downstream from county highway bridge, 1.4 miles downstream from Ten Mile Creek, and 1.5 miles north of Hyde.
DRAINAGE AREA.—450 sq mi.
PERIOD OF RECORD.—Water temperatures: July 1956 to September 1971.
EXTREMES, 1970-71:
Water temperatures: Maximum, 27.0°C Aug. 9; minimum, freezing point on many days during November to April.
Period of record:
Water temperature (1956-71): Maximum 30.5°C July 21, 1964; minimum, freezing point on many days during winter period.
REMARKS.—Complete ice cover during winter period. No temperature record Oct. 1 to Nov. 8, pen not marking. Periodic specific conductance data for this station are published on page 77; miscellaneous analyses on page 88.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1970

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	---	---	4.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	---	---	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	---	---	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	---	---	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	---	---	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	---	---	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	---	---	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	---	---	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	---	---	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	---	---	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	---	---	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	---	---	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	---	---	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	---	---	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	---	---	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	---	---	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	---	---	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	6.0	5.5	12.5	9.5	22.5	20.0	20.0	18.5	21.0	18.0
2	0.0	0.0	7.0	5.0	12.5	11.0	21.5	18.0	20.5	18.0	24.0	18.5
3	0.0	0.0	8.5	5.0	17.0	12.0	22.0	18.5	20.5	18.0	26.0	21.0
4	0.0	0.0	8.0	6.0	18.5	15.5	22.0	19.5	21.5	17.0	26.0	22.0
5	0.0	0.0	8.5	7.0	18.5	16.0	23.0	20.0	23.0	17.0	25.0	22.5
6	0.0	0.0	11.0	7.0	19.0	15.0	24.0	21.0	24.5	18.5	23.5	21.5
7	0.0	0.0	11.5	7.5	19.0	14.5	24.0	22.0	26.5	20.5	24.0	19.5
8	0.0	0.0	12.0	8.5	16.0	13.0	24.5	21.5	26.5	21.5	21.5	19.0
9	0.0	0.0	13.0	8.5	16.0	12.5	24.0	21.5	27.0	22.5	20.0	17.5
10	0.0	0.0	14.0	10.0	16.5	13.5	23.5	21.0	24.0	21.0	20.0	18.5
11	0.5	0.0	13.0	10.5	18.0	14.5	23.0	20.0	23.0	19.5	19.0	18.0
12	1.0	0.0	10.0	8.0	20.0	16.5	22.0	20.0	21.5	19.0	17.5	15.5
13	1.0	0.0	11.5	7.0	21.5	18.5	21.0	20.0	21.5	18.5	19.0	15.0
14	1.0	0.0	12.5	9.0	22.0	19.0	22.0	18.5	21.5	19.5	20.0	17.0
15	2.5	0.5	14.0	10.5	22.5	19.5	22.5	20.0	22.0	18.0	19.0	16.0
16	4.0	1.5	15.0	12.0	22.5	20.0	22.0	19.5	23.0	18.0	18.0	14.5
17	6.0	3.5	14.0	12.0	23.0	20.5	20.5	17.0	24.5	19.0	17.5	15.0
18	6.5	4.5	12.5	10.0	23.0	20.5	20.0	17.5	24.5	20.5	17.0	13.0
19	6.5	5.0	11.5	8.5	21.0	19.5	20.5	16.0	23.0	22.0	13.5	13.0
20	7.0	6.0	10.5	8.5	21.5	20.0	23.0	19.0	24.0	20.5	15.0	12.5
21	7.0	5.5	11.5	8.0	21.0	19.0	23.5	20.0	24.5	20.0	16.0	12.5
22	7.5	5.5	12.5	8.5	21.0	19.5	23.0	22.0	23.0	19.5	14.0	13.5
23	7.0	6.5	11.5	9.5	21.5	19.0	23.0	20.5	21.5	17.0	14.5	13.0
24	6.5	5.5	9.5	9.0	21.0	19.0	24.0	20.0	18.0	16.0	13.5	11.5
25	5.5	4.5	8.5	8.0	20.0	17.0	23.0	20.5	17.0	15.5	13.5	12.5
26	7.0	4.5	10.5	7.5	20.0	17.0	21.5	19.0	18.5	16.0	13.5	13.0
27	6.5	5.0	12.0	8.0	22.5	18.0	20.5	17.5	20.5	15.5	14.0	13.0
28	5.5	4.5	13.5	9.5	25.5	20.5	19.5	18.0	22.5	16.0	17.0	14.0
29	5.5	4.0	15.0	11.0	25.0	22.5	21.0	17.0	23.5	18.0	17.5	15.5
30	6.5	4.0	15.0	13.0	24.5	22.0	18.0	17.0	21.0	19.0	16.0	15.5
31	---	---	13.0	10.5	---	---	20.5	16.0	20.5	17.0	---	---
MONTH	7.5	0.0	15.0	5.0	25.5	9.5	24.5	16.0	27.0	15.5	26.0	11.5
YEAR	27.0	0.0										

STREAMS TRIBUTARY TO LAKE MICHIGAN

04062200 PESHEKEE RIVER NEAR CHAMPION, MICH.

LOCATION.—Lat 46°33'25", long 88°00'09", in NW¼ sec.13, T.48 N., R.30 W., Marquette County, temperature recorder at gaging station on left bank 10 ft downstream from bridge on county highway, 0.6 mile downstream from West Branch, and 3.5 miles northwest of Champion.

DRAINAGE AREA.—133 sq mi.

PERIOD OF RECORD.—Water temperatures: August 1961 to September 1971.

EXTREMES, 1970-71:
Water temperatures: Maximum, 24.0°C June 28, 29, Aug. 9, 10, 18, 19, Sept. 3; minimum, freezing point on many days during November to April.
Period of record:
Water temperatures (1961-70): Maximum, 28.5°C July 1, 1966; minimum, freezing point on many days during winter period.

REMARKS.—Complete ice cover during winter period. Recorder stopped Dec. 11-16, 22-24, Mar. 18 to Apr. 8, range in temperature 0.0°C for all periods. No temperature record Apr. 9-19, pen not marking. Unpublished water temperatures for water year 1963 are available in the Escanaba Sub-Office. Miscellaneous chemical analyses for this station are published on page 123.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	9.0	6.5	6.0	0	0	0	0	0	0	0	0
2	10.5	10.0	6.0	5.5	0	0	0	0	0	0	0	0
3	10.0	9.0	5.5	5.5	0	0	0	0	0	0	0	0
4	9.0	8.0	5.0	4.5	0	0	0	0	0	0	0	0
5	9.0	7.0	4.5	4.0	0	0	0	0	0	0	0	0
6	10.0	8.5	4.0	3.5	0	0	0	0	0	0	0	0
7	11.5	10.0	4.0	3.5	0	0	0	0	0	0	0	0
8	12.5	11.5	3.5	3.0	0	0	0	0	0	0	0	0
9	12.5	12.5	4.0	3.0	0	0	0	0	0	0	0	0
10	12.5	10.0	4.0	4.0	0	0	0	0	0	0	0	0
11	10.0	9.0	4.0	4.0	0	0	0	0	0	0	0	0
12	9.5	9.0	4.0	4.0	0	0	0	0	0	0	0	0
13	9.0	8.5	3.5	2.5	0	0	0	0	0	0	0	0
14	9.0	8.0	2.5	1.5	0	0	0	0	0	0	0	0
15	8.0	7.0	1.5	1.5	0	0	0	0	0	0	0	0
16	7.0	6.5	1.5	1.5	0	0	0	0	0	0	0	0
17	7.0	6.0	1.5	1.5	0	0	0	0	0	0	0	0
18	7.0	6.0	1.5	1.5	0	0	0	0	0	0	0	0
19	7.0	5.5	1.5	1.5	0	0	0	0	0	0	0	0
20	7.0	6.0	1.5	1.5	0	0	0	0	0	0	0	0
21	7.5	7.0	1.5	1.5	0	0	0	0	0	0	0	0
22	8.5	7.5	1.0	0.5	0	0	0	0	0	0	0	0
23	9.0	8.5	0.5	0.5	0	0	0	0	0	0	0	0
24	9.0	9.0	0.5	0.0	0	0	0	0	0	0	0	0
25	9.0	9.0	0	0	0	0	0	0	0	0	0	0
26	8.5	8.5	0	0	0	0	0	0	0	0	0	0
27	8.5	8.5	0	0	0	0	0	0	0	0	0	0
28	8.0	8.0	0	0	0	0	0	0	0	0	0	0
29	8.5	8.0	0	0	0	0	0	0	---	---	0	0
30	7.5	7.0	---	---	0	0	0	0	---	---	0	0
31	7.0	6.5			0	0	0	0	---	---	0	0
MONTH	12.5	5.5	6.5	0	0	0	0	0	0	0	0	0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	5.5	5.0	14.0	11.5	20.0	19.0	19.0	17.5	20.5	17.5
2	---	---	5.0	4.0	14.0	13.0	19.0	17.0	18.5	16.5	23.0	19.0
3	---	---	7.0	4.5	16.5	13.5	20.5	18.0	18.5	16.5	24.0	20.5
4	---	---	7.0	6.0	18.5	15.5	20.5	19.5	19.5	15.0	23.5	22.0
5	---	---	7.0	6.5	18.0	17.5	21.0	19.0	20.5	16.0	22.5	21.5
6	---	---	8.0	6.0	19.0	16.0	22.0	19.5	21.5	16.5	22.5	20.5
7	---	---	9.5	7.5	19.5	15.5	22.0	20.5	23.0	17.5	22.5	19.0
8	---	---	9.5	9.0	15.5	14.0	23.0	21.0	23.0	19.0	21.5	20.0
9	---	---	10.0	8.5	16.0	14.0	23.0	19.5	24.0	20.0	20.5	17.5
10	---	---	11.5	9.5	16.5	14.5	22.0	19.5	24.0	21.0	19.5	18.0
11	---	---	11.5	10.0	17.0	15.5	22.0	18.0	21.0	18.0	18.5	17.0
12	---	---	10.0	7.0	19.0	16.5	21.5	18.5	21.0	18.0	18.5	16.0
13	---	---	8.0	6.0	20.5	18.5	19.5	18.5	21.0	18.0	19.5	16.0
14	---	---	10.0	8.0	22.0	19.0	20.0	17.0	21.5	18.0	18.5	16.5
15	---	---	12.0	10.0	21.0	19.0	20.5	18.0	21.0	16.5	17.0	14.5
16	---	---	12.5	11.5	21.0	19.0	20.5	19.0	22.5	17.5	16.5	13.0
17	---	---	13.0	12.0	22.0	20.0	20.5	17.0	22.0	19.0	15.5	12.5
18	---	---	12.0	11.0	22.0	21.0	19.5	17.0	24.0	20.0	14.5	11.0
19	---	---	11.0	9.0	21.0	19.0	20.0	16.0	24.0	21.5	13.5	11.5
20	4.0	3.0	9.0	8.5	19.5	19.5	20.5	17.5	23.0	19.5	14.5	11.5
21	4.5	3.0	10.0	8.0	20.0	17.5	21.0	18.5	22.5	18.5	14.0	12.5
22	5.0	4.0	11.5	9.0	20.5	18.5	20.5	19.0	22.0	19.0	12.5	10.0
23	5.0	4.5	11.5	10.5	20.0	18.0	21.0	19.0	20.5	16.5	13.0	11.5
24	4.5	3.5	11.0	10.5	20.0	18.0	22.0	18.0	19.0	16.0	12.5	10.0
25	4.0	4.0	10.5	9.5	19.5	17.0	21.5	19.5	16.0	16.0	12.5	11.0
26	5.5	4.0	10.0	9.0	20.0	17.0	21.0	19.0	18.5	15.0	12.0	12.0
27	5.0	5.0	12.0	9.5	22.5	18.5	20.0	17.0	19.0	15.0	12.5	12.0
28	5.0	4.0	14.0	11.5	24.0	21.0	20.0	18.0	19.5	15.0	14.0	12.5
29	5.0	4.0	15.5	13.0	24.0	21.0	18.5	15.5	20.5	16.5	14.5	14.0
30	5.5	4.0	15.0	13.5	21.0	20.0	18.0	16.0	20.0	18.5	14.5	14.0
31	---	---	14.0	12.5	---	---	19.0	15.5	19.0	16.5	---	---
MONTH	---	---	15.5	4.0	24.0	11.5	23.0	15.5	24.0	15.0	24.0	10.0
YEAR	24.0	0										

04065500 STURGEON RIVER NEAR FOSTER CITY, MICH.

LOCATION.—Lat 45°54'30", long 87°45'15", in NW¼ sec.36, T.41 N., R.28 W., Dickinson County, temperature recorder at gaging station on left bank 30 ft downstream from bridge on County Highway 569, 1.8 miles downstream from confluence of East and West Branches, and 4 miles south of Foster City.

DRAINAGE AREA.—237 sq mi.

PERIOD OF RECORD.—Water temperatures: July 1956 to September 1971.

EXTREMES, 1970-71:

Water temperatures: Maximum 25.5°C Aug. 9; minimum, freezing point on many days during December to April.

Period of record:

Water temperatures (1956-71): Maximum, 30.0°C July 1, 1963; minimum, freezing point on many days during winter period.

REMARKS.—Complete ice cover during winter period. Recorder stopped Nov. 8 to Dec. 22, range in temperature 0.0°C to 5.0°C; Jan. 9 to Feb. 9, range in temperature 0.0°C. Periodic specific conductance data for this station are published on page 77.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	10.0	7.5	7.0	---	---	0.0	0.0	---	---	0.0	0.0
2	13.0	11.5	6.5	6.0	---	---	0.0	0.0	---	---	0.0	0.0
3	12.5	10.5	6.0	6.0	---	---	0.0	0.0	---	---	0.0	0.0
4	11.0	9.0	6.0	5.5	---	---	0.0	0.0	---	---	0.0	0.0
5	11.5	8.5	5.5	5.0	---	---	0.0	0.0	---	---	0.0	0.0
6	13.5	10.5	5.5	4.5	---	---	0.0	0.0	---	---	0.0	0.0
7	14.0	13.0	5.0	4.5	---	---	0.0	0.0	---	---	0.0	0.0
8	15.0	13.5	---	---	---	---	0.0	0.0	---	---	0.0	0.0
9	14.5	14.0	---	---	---	---	---	---	---	---	0.0	0.0
10	14.0	11.5	---	---	---	---	---	---	0.0	0.0	0.0	0.0
11	12.0	9.5	---	---	---	---	---	---	0.0	0.0	0.0	0.0
12	12.0	10.5	---	---	---	---	---	---	0.0	0.0	0.0	0.0
13	11.5	10.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
14	11.0	10.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
15	10.0	8.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
16	9.0	7.5	---	---	---	---	---	---	0.0	0.0	0.0	0.0
17	9.0	7.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
18	9.0	7.5	---	---	---	---	---	---	0.0	0.0	0.0	0.0
19	9.0	7.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
20	9.0	8.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
21	9.0	8.0	---	---	---	---	---	---	0.0	0.0	0.0	0.0
22	10.0	8.5	---	---	---	---	---	---	0.0	0.0	0.0	0.0
23	10.5	9.5	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0
24	10.5	10.0	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0
25	10.5	9.5	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0
26	10.0	9.5	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0
27	9.5	9.5	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0
28	10.0	9.5	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0
29	10.0	9.0	---	---	0.0	0.0	---	---	---	---	0.0	0.0
30	9.0	8.0	---	---	0.0	0.0	---	---	---	---	0.0	0.0
31	8.0	7.5	---	---	0.0	0.0	---	---	---	---	0.0	0.0
MONTH	15.0	7.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	7.0	7.0	14.5	12.5	22.0	21.0	19.5	17.5	19.5	17.5
2	0.0	0.0	8.5	6.5	16.0	14.0	21.0	19.0	19.0	17.0	21.5	18.0
3	0.0	0.0	9.5	6.5	19.0	15.0	21.0	19.0	19.5	17.5	24.0	20.0
4	0.0	0.0	9.5	8.0	20.0	17.5	21.0	20.0	20.5	16.5	24.0	22.0
5	0.0	0.0	9.5	8.0	20.5	19.0	23.0	20.5	21.0	17.0	23.0	21.5
6	0.0	0.0	11.5	8.5	21.0	18.5	24.5	20.5	22.5	17.5	22.5	20.5
7	0.0	0.0	12.0	9.5	21.0	17.5	24.0	21.5	24.0	19.5	22.0	19.0
8	0.0	0.0	13.0	11.0	18.0	15.5	25.0	21.5	24.0	20.5	21.5	19.5
9	0.5	0.5	14.5	11.0	18.0	15.5	25.0	21.0	25.5	21.5	20.0	18.5
10	0.5	0.5	15.0	12.0	17.5	16.0	24.0	20.5	25.0	21.5	18.5	18.0
11	1.0	1.0	14.5	12.5	19.0	17.0	24.0	19.5	22.0	19.0	19.0	17.5
12	1.0	1.0	12.5	10.0	21.5	18.5	23.0	19.5	20.5	18.0	18.5	16.5
13	1.5	1.0	13.0	9.0	22.0	20.0	20.5	19.5	20.5	18.0	19.0	15.5
14	2.5	2.0	14.0	10.5	22.0	19.0	21.5	18.0	21.5	18.5	19.0	17.0
15	4.0	2.5	15.0	12.5	22.5	19.5	22.0	19.0	21.0	17.0	18.0	15.0
16	6.0	4.0	17.0	13.5	22.0	20.0	21.5	19.5	21.5	17.5	16.5	13.0
17	7.0	5.0	16.5	14.0	24.0	20.5	21.5	17.5	22.5	18.5	16.0	13.5
18	8.0	7.0	14.5	12.5	23.5	21.5	20.5	17.0	23.0	20.0	15.0	12.0
19	8.5	7.5	12.5	11.0	22.0	20.0	19.5	16.0	23.0	21.0	14.5	12.5
20	9.5	8.5	12.0	11.0	23.0	21.0	21.5	17.5	22.5	19.5	13.5	11.5
21	9.5	8.5	13.0	10.0	23.0	20.0	22.5	19.5	22.0	19.0	13.0	11.0
22	9.5	8.0	13.5	11.0	23.0	20.5	22.5	20.5	22.0	20.0	12.5	11.5
23	9.5	8.0	13.5	12.0	22.5	20.5	23.0	20.0	20.0	16.5	13.0	11.5
24	8.0	6.5	12.0	11.0	22.0	19.0	23.0	19.5	19.0	16.0	13.0	10.0
25	7.0	6.5	11.0	10.0	20.5	17.5	23.0	20.0	16.0	15.5	12.5	10.5
26	8.5	6.5	11.5	9.0	19.0	17.0	22.0	19.5	18.0	15.0	11.5	11.0
27	8.5	7.0	14.0	10.0	21.0	18.0	20.5	17.5	19.0	15.0	12.0	11.0
28	7.0	6.0	15.5	12.0	23.5	20.5	20.0	18.0	20.0	15.5	13.5	12.0
29	7.0	5.5	17.0	14.0	24.0	22.5	19.5	16.5	20.5	17.0	15.0	13.0
30	7.0	5.5	17.0	16.0	23.5	22.0	19.5	17.0	20.5	19.0	14.5	13.5
31	---	---	16.5	14.0	---	---	19.5	16.5	19.0	17.0	---	---
MONTH	9.5	0.0	17.0	6.5	24.0	12.5	25.0	16.0	25.5	15.0	24.0	10.0
YEAR	25.5	0.0										

04106000 KALAMAZOO RIVER AT COMSTOCK, MICH.

LOCATION.--Lat 42°12'05", long 85°30'50", in NE1/4 sec.19, T.2 S., R.10 W., Kalamazoo County, temperature recorder at gaging station on left bank at downstream side of bridge on River Street in Comstock, 0.2 mile downstream from Comstock Creek.
DRAINAGE AREA.--1,010 sq mi, approximately.
PERIOD OF RECORD.--Water temperature: December 1968 to September 1971.
EXTREMES, 1970-71:
Water temperatures: Maximum, 29,0°C Aug. 21-24; minimum, not recorded.
Period of record:
Water temperatures (1968 to 71): Maximum, 32°C July 15-17 and Aug. 29, 1969; minimum, freezing point on several days during winter months.
REMARKS.--No temperature record Oct. 1-March 25 due to recorder failures. Flow regulated by powerplant above station. Chemical analyses for this station are published on page 61.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	7.0	7.0
27	---	---	---	---	---	---	---	---	---	---	7.5	7.0
28	---	---	---	---	---	---	---	---	---	---	7.5	7.0
29	---	---	---	---	---	---	---	---	---	---	8.0	7.0
30	---	---	---	---	---	---	---	---	---	---	8.5	6.5
31	---	---	---	---	---	---	---	---	---	---	9.5	7.0
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

	PRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	9.0	14.0	12.0	20.5	19.0	27.5	24.5	22.0	21.5	27.0	24.5
2	9.5	8.0	13.5	12.5	21.0	19.0	27.0	23.0	23.5	22.0	27.0	24.0
3	8.5	6.5	14.5	12.5	21.5	18.5	24.5	22.5	23.5	22.0	25.5	23.5
4	7.5	6.0	14.5	13.5	23.0	19.5	25.5	22.5	25.0	22.5	26.5	25.0
5	8.0	6.0	14.5	13.5	23.0	20.0	25.5	21.5	25.5	21.5	27.0	24.0
6	8.5	7.5	15.5	13.5	23.5	21.0	25.5	22.0	26.0	22.5	26.0	23.5
7	9.5	8.0	16.0	14.5	24.5	21.5	25.5	22.5	26.0	22.0	26.0	23.5
8	11.0	9.0	16.0	15.0	24.0	21.0	26.0	23.5	23.5	22.0	26.0	24.5
9	11.5	9.5	17.0	16.0	22.0	20.5	25.5	24.0	27.0	23.0	26.0	25.5
10	11.5	10.0	19.0	15.5	22.5	19.5	26.0	23.5	27.5	24.5	26.0	24.5
11	11.0	10.0	19.0	16.5	22.5	20.5	26.0	24.0	27.0	24.5	26.0	25.5
12	13.0	10.5	18.0	16.0	23.0	21.0	26.5	23.0	27.0	24.0	25.0	22.5
13	13.5	12.5	17.5	15.5	23.0	21.5	26.5	23.5	27.0	24.0	22.5	20.0
14	13.0	12.0	16.5	15.5	25.0	21.0	25.5	22.5	27.0	25.0	22.5	20.0
15	12.5	11.5	17.5	16.5	25.5	22.0	24.5	22.5	25.5	25.0	22.5	20.0
16	13.0	11.5	17.5	17.0	25.5	22.0	25.0	22.0	27.5	24.0	22.0	19.5
17	14.0	12.5	19.5	16.5	25.5	22.0	25.0	22.5	28.0	24.0	23.0	20.0
18	14.0	12.5	20.0	18.0	25.5	22.5	23.0	22.0	28.0	24.5	22.5	22.0
19	14.5	13.0	21.0	19.0	26.5	23.0	24.5	23.0	27.5	24.5	22.0	19.5
20	15.0	14.0	20.0	18.0	26.0	24.0	23.0	22.0	28.5	26.0	21.0	19.0
21	16.0	13.5	18.5	17.5	26.0	23.0	25.0	21.5	29.0	28.5	21.0	18.5
22	15.5	13.5	18.5	16.5	25.5	22.0	25.5	23.0	29.0	26.0	20.5	18.5
23	15.0	13.0	18.5	17.5	25.0	22.5	25.5	23.5	29.0	25.0	20.5	20.0
24	14.5	12.5	18.5	18.0	26.0	23.5	25.5	23.5	29.0	25.0	21.0	20.5
25	13.5	12.0	18.5	17.5	25.5	23.0	24.5	23.0	28.5	25.5	21.0	20.5
26	15.5	12.5	17.5	16.0	26.5	23.0	25.0	23.5	28.0	25.0	20.5	18.0
27	15.0	12.5	16.0	15.5	26.0	23.5	26.0	23.0	28.5	25.5	20.5	18.0
28	14.0	12.0	17.0	15.5	28.0	24.0	24.0	22.5	28.0	24.5	21.0	19.5
29	13.0	11.5	17.0	16.5	28.5	24.0	23.0	22.0	27.5	23.5	21.0	20.5
30	13.0	11.0	18.0	17.0	28.5	25.5	23.0	21.5	26.5	24.5	22.5	21.0
31	---	---	0.0	17.5	---	---	22.0	21.5	27.0	24.5	---	---
MONTH	16.0	6.0	21.0	12.5	28.5	18.5	27.5	21.5	29.0	21.5	27.0	18.0
YEAR	29.0	6.0										

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04106300 PORTAGE CREEK NEAR KALAMAZOO, MICH.

LOCATION.--Lat 42°14'46", long 85°34'33", in SE1/4 sec.34, T.2 S., R.11 W., Kalamazoo County, at gaging station on left bank 25 ft upstream from bridge on Lover's Lane and 3.0 miles south of Kalamazoo.

DRAINAGE AREA.--22.4 sq mi.

PERIOD OF RECORD.--Chemical analyses: April 1968 to April 1971 (discontinued).
Water temperatures: July 1968 to April 1971 (discontinued).

EXTREMES, October 1970 to April 1971:
Specific conductance: Maximum recorded, 820 micromhos Feb. 5; minimum recorded, 360 micromhos Feb. 19.
Water temperatures: Maximum recorded, 23.0°C April 17, 20; minimum recorded 5.5°C, Jan. 19, 26, Feb. 28, and Mar. 4.
Period of record:
Specific conductance: Maximum recorded, 1,200 micromhos May 17, 1969; minimum, 220 micromhos July 19, 1970.
Water temperatures: Maximum, 25°C June 12, one or more days between July 18 and Aug. 12; minimum 2°C one or more days between Dec. 14 and Jan. 14.

REMARKS.--No record of specific conductance Nov. 7-18, Dec. 8-Jan. 5, due to malfunctions of recorder. No temperature record Dec. 22 to Jan. 5, Jan. 6-13, Jan. 29 to Feb. 16. Temperature ranges 6.0 to 11.5°C, 4.0 to 10.0°C, 4.5 to 10.5°C, respectively. Flow includes water which is pumped by industry from ground-water sources and discharged into stream two miles above station.

CHEMICAL ANALYSES, OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DISSOLVED SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)
OCT. 19...	1030	15	--	--	72	19	12	1.5

DATE	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
OCT. 19...	254	0	208	36	30	.2	4.9	303	.41

DATE	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
OCT. 19...	260	52	9	.3	518	7.8	5	50

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	490	480	460	460	450	440	---	---	480	470	460	450
2	480	480	460	440	450	430	---	---	520	470	480	440
3	480	470	480	460	440	420	---	---	490	470	480	450
4	470	470	460	420	450	420	---	---	610	470	480	460
5	480	470	480	450	440	440	---	---	820	470	490	470
6	480	470	490	470	440	440	490	460	570	460	490	450
7	480	480	---	---	450	440	480	460	480	460	490	440
8	490	490	---	---	---	---	490	460	490	460	500	460
9	490	420	---	---	---	---	500	470	480	460	540	460
10	470	450	---	---	---	---	480	480	500	450	590	470
11	470	470	---	---	---	---	510	470	670	460	560	480
12	480	470	---	---	---	---	520	480	530	480	560	470
13	480	480	---	---	---	---	540	500	500	470	510	490
14	480	470	---	---	---	---	550	510	480	470	510	460
15	480	460	---	---	---	---	520	510	520	470	470	420
16	500	490	---	---	---	---	510	500	610	480	510	430
17	530	500	---	---	---	---	510	500	680	500	510	450
18	520	510	---	---	---	---	610	500	540	480	480	460
19	510	490	500	490	---	---	530	500	470	360	650	480
20	510	490	490	440	---	---	520	500	470	430	490	480
21	500	460	470	460	---	---	520	500	460	450	480	480
22	500	490	470	470	---	---	520	500	570	460	490	480
23	500	490	470	460	---	---	520	490	540	470	520	480
24	500	480	470	425	---	---	530	490	570	480	540	490
25	480	480	480	460	---	---	510	480	520	480	550	490
26	490	470	525	470	---	---	500	470	520	480	540	490
27	490	480	525	380	---	---	490	460	590	430	540	520
28	480	400	430	380	---	---	490	470	480	450	540	500
29	460	400	430	420	---	---	490	470	---	---	570	490
30	480	470	450	430	---	---	480	470	---	---	540	470
31	470	460	---	---	---	---	470	470	---	---	530	490
MONTH	530	400	---	---	---	---	610	460	820	360	650	420

04106300 PORTAGE CREEK NEAR KALAMAZOO, MICH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	520	490	---	---	---	---	---	---	---	---	---	---
2	520	480	---	---	---	---	---	---	---	---	---	---
3	570	490	---	---	---	---	---	---	---	---	---	---
4	530	490	---	---	---	---	---	---	---	---	---	---
5	540	490	---	---	---	---	---	---	---	---	---	---
6	530	500	---	---	---	---	---	---	---	---	---	---
7	540	490	---	---	---	---	---	---	---	---	---	---
8	540	500	---	---	---	---	---	---	---	---	---	---
9	540	500	---	---	---	---	---	---	---	---	---	---
10	540	490	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
YEAR	820	360										

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.0	12.0	13.0	11.5	14.5	11.5	---	---	---	---	11.5	8.0
2	17.0	14.5	11.5	11.5	13.0	10.5	---	---	---	---	11.0	7.0
3	16.5	14.0	13.0	11.0	11.5	10.5	---	---	---	---	10.5	6.5
4	14.5	12.0	13.0	12.0	11.0	9.0	---	---	---	---	11.0	5.5
5	17.0	14.0	13.5	11.5	10.5	9.5	---	---	---	---	11.5	8.0
6	18.5	15.5	14.5	11.5	9.5	8.5	---	---	---	---	10.5	7.0
7	18.5	16.0	14.5	12.0	9.5	8.5	---	---	---	---	9.0	6.5
8	18.5	16.0	13.5	12.0	10.0	8.5	---	---	---	---	9.5	6.0
9	19.0	18.0	14.5	13.5	11.0	10.0	---	---	---	---	11.5	6.0
10	18.0	14.5	14.5	14.5	10.5	9.5	---	---	---	---	10.0	6.5
11	15.0	12.0	14.0	13.0	10.5	8.5	---	---	---	---	13.5	8.0
12	16.5	15.0	14.0	13.0	10.5	9.5	---	---	---	---	13.0	9.0
13	18.0	16.5	14.0	12.0	10.5	10.0	---	---	---	---	12.0	9.5
14	17.0	15.5	12.0	10.5	10.5	9.5	10.0	8.5	---	---	14.5	10.0
15	16.0	13.5	10.5	9.0	10.5	9.0	9.0	8.0	---	---	11.5	8.0
16	15.0	13.0	11.0	9.0	10.0	9.5	9.0	8.0	---	---	9.0	6.5
17	15.5	13.0	11.0	10.0	12.0	9.5	8.5	7.0	12.0	9.0	11.5	7.0
18	16.0	13.0	11.0	10.0	12.0	10.5	9.5	6.5	12.0	9.0	9.5	7.0
19	17.0	13.0	13.5	11.0	11.0	10.0	9.0	5.5	10.5	6.5	10.0	7.0
20	16.0	15.0	13.0	11.0	10.0	9.0	9.5	8.0	8.5	8.0	9.0	6.5
21	16.5	14.5	12.0	10.0	---	---	9.5	8.0	9.5	7.0	11.5	7.0
22	16.5	12.0	11.5	10.0	---	---	11.0	8.5	9.5	7.0	11.0	8.0
23	18.0	14.5	10.0	9.0	---	---	9.5	7.0	9.5	8.0	10.0	6.5
24	16.5	14.5	10.0	8.5	---	---	10.5	8.5	11.5	8.5	11.0	7.0
25	16.5	14.5	10.0	8.5	---	---	11.5	8.5	14.0	8.5	14.0	7.0
26	16.5	14.5	10.5	9.5	---	---	10.0	5.5	12.0	9.5	14.5	8.5
27	17.0	15.0	11.5	10.5	---	---	9.5	6.0	10.0	6.5	11.5	9.5
28	16.5	15.5	10.5	9.5	---	---	9.5	6.5	9.0	5.5	14.0	10.0
29	15.5	14.5	11.0	10.5	---	---	---	---	---	---	12.0	10.0
30	15.0	11.5	12.0	11.0	---	---	---	---	---	---	15.5	9.0
31	14.5	13.0	---	---	---	---	---	---	---	---	16.0	10.5
MONTH	19.0	11.5	14.5	8.5	---	---	---	---	---	---	16.0	5.5

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04106300 PORTAGE CREEK NEAR KALAMAZOO, MICH.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	11.0	---	---	---	---	---	---	---	---	---	---
2	13.5	10.0	---	---	---	---	---	---	---	---	---	---
3	12.0	9.5	---	---	---	---	---	---	---	---	---	---
4	13.5	9.0	---	---	---	---	---	---	---	---	---	---
5	15.0	9.0	---	---	---	---	---	---	---	---	---	---
6	15.0	9.0	---	---	---	---	---	---	---	---	---	---
7	17.0	10.0	---	---	---	---	---	---	---	---	---	---
8	18.5	11.5	---	---	---	---	---	---	---	---	---	---
9	18.0	13.0	---	---	---	---	---	---	---	---	---	---
10	19.0	11.0	---	---	---	---	---	---	---	---	---	---
11	19.5	13.0	---	---	---	---	---	---	---	---	---	---
12	21.5	15.5	---	---	---	---	---	---	---	---	---	---
13	18.5	13.5	---	---	---	---	---	---	---	---	---	---
14	19.0	11.5	---	---	---	---	---	---	---	---	---	---
15	20.5	13.5	---	---	---	---	---	---	---	---	---	---
16	20.5	14.0	---	---	---	---	---	---	---	---	---	---
17	23.0	16.5	---	---	---	---	---	---	---	---	---	---
18	19.0	16.0	---	---	---	---	---	---	---	---	---	---
19	21.5	15.5	---	---	---	---	---	---	---	---	---	---
20	23.0	16.5	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
YEAR	23.0	5.5										

STREAMS TRIBUTARY TO LAKE MICHIGAN

04106400 WEST FORK PORTAGE CREEK AT KALAMAZOO, MICH.

LOCATION.--Lat 42°14'40", long 85°36'50", in NE¼ sec.5, T.3 S., R.11 W., Kalamazoo County, analog temperature and specific conductance recorders on right bank 50 ft upstream from culvert on Oakland Drive, 2.5 miles upstream from mouth, and 3.7 miles southwest of main business district of Kalamazoo.

DRAINAGE AREA.--18.7 sq mi.

PERIOD OF RECORD.--Specific conductance: April 1971 to June 1971.
Water temperatures: April 1971 to September 1971.

EXTREMES.--1970-71:
Specific conductance (Apr. to June): Maximum recorded, 410 umhos June 22, 23; minimum recorded, 310 umhos May 24.
Water temperatures: Maximum, 34.0°C June 28; minimum, not recorded.

REMARKS.--Periods of missing data due to malfunctions of the recorders. Additional analyses for this site are on page 124.

CHEMICAL ANALYSES, OCTOBER 1970 TO SEPTEMBER, 1971

DATE	TIME	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	NITRATE (NO3) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
MAR.								
26...	1425	213	0	175	21	9.7	1.1	224
JULY								
29...	1530	198	0	162	12	5.9	.8	190

DATE	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
MAR.							
26...	.30	190	16	383	7.5	--	--
JULY							
29...	.26	170	8	330	7.8	7	1

04106400 WEST FORK PORTAGE CREEK AT KALAMAZOO, MICH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	370	365	345	340	---	---	---	---	---	---
2	---	---	370	360	350	340	---	---	---	---	---	---
3	---	---	370	360	345	340	---	---	---	---	---	---
4	---	---	370	360	340	325	---	---	---	---	---	---
5	---	---	365	360	---	---	---	---	---	---	---	---
6	---	---	360	355	---	---	---	---	---	---	---	---
7	---	---	360	355	---	---	---	---	---	---	---	---
8	---	---	360	340	---	---	---	---	---	---	---	---
9	---	---	365	350	---	---	---	---	---	---	---	---
10	---	---	360	350	---	---	---	---	---	---	---	---
11	---	---	355	340	---	---	---	---	---	---	---	---
12	---	---	355	340	---	---	---	---	---	---	---	---
13	---	---	350	335	---	---	---	---	---	---	---	---
14	---	---	345	330	---	---	---	---	---	---	---	---
15	---	---	340	330	---	---	---	---	---	---	---	---
16	---	---	340	335	---	---	---	---	---	---	---	---
17	---	---	350	330	365	355	---	---	---	---	---	---
18	---	---	340	330	375	355	---	---	---	---	---	---
19	---	---	340	330	370	360	---	---	---	---	---	---
20	---	---	340	320	390	350	---	---	---	---	---	---
21	---	---	340	320	370	360	---	---	---	---	---	---
22	380	360	335	320	410	370	---	---	---	---	---	---
23	370	365	345	335	410	370	---	---	---	---	---	---
24	355	350	340	310	370	360	---	---	---	---	---	---
25	360	350	335	320	---	---	---	---	---	---	---	---
26	365	360	350	335	---	---	---	---	---	---	---	---
27	370	360	350	340	---	---	---	---	---	---	---	---
28	370	365	350	340	---	---	---	---	---	---	---	---
29	370	360	360	345	---	---	---	---	---	---	---	---
30	370	370	350	340	---	---	---	---	---	---	---	---
31	---	---	350	340	---	---	---	---	---	---	---	---
MONTH	---	---	370	310	---	---	---	---	---	---	---	---
YEAR	410	310										

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	16.5	19.0	22.0	25.0	30.0	22.5	24.5	22.0	25.0	17.5
2	---	---	14.5	16.5	23.0	24.0	29.5	23.5	25.5	22.5	25.0	15.5
3	---	---	17.0	9.5	26.5	19.0	29.5	23.5	24.5	22.0	25.0	22.5
4	---	---	14.0	10.5	29.0	22.0	29.0	24.0	23.5	22.0	25.5	23.0
5	---	---	15.0	11.0	30.5	24.0	26.5	24.5	25.0	20.0	27.0	23.0
6	---	---	19.0	13.0	29.0	25.5	29.5	23.5	26.0	20.5	24.0	23.0
7	---	---	17.0	13.0	28.0	24.0	28.5	24.0	26.5	21.0	26.5	22.0
8	---	---	21.0	13.5	26.5	21.0	27.5	24.5	27.5	22.0	27.5	23.0
9	---	---	21.0	14.5	24.0	19.0	28.5	25.5	27.5	23.0	27.0	23.5
10	---	---	23.5	14.5	24.5	18.5	28.5	24.5	29.0	25.0	25.5	23.0
11	---	---	18.5	17.0	23.0	21.0	28.5	24.0	26.5	23.0	23.5	21.0
12	---	---	19.0	14.0	27.5	22.0	28.0	23.0	26.5	21.0	21.0	19.5
13	---	---	21.0	13.0	29.5	24.5	28.0	24.0	27.0	22.0	21.0	18.0
14	---	---	23.5	14.0	28.0	23.5	27.0	22.5	27.5	24.0	23.0	20.5
15	---	---	24.5	16.0	28.5	24.0	24.0	22.0	26.5	22.5	22.0	19.0
16	---	---	26.0	18.0	28.5	23.5	26.0	21.0	27.0	21.5	21.5	18.5
17	---	---	26.0	17.0	29.0	23.5	26.5	23.0	28.0	22.0	22.5	19.0
18	---	---	26.0	19.5	29.0	23.5	26.5	22.5	27.5	22.5	20.5	18.5
19	---	---	24.0	19.0	31.0	25.0	26.0	22.5	27.0	22.0	18.5	17.5
20	---	---	24.0	17.0	31.0	27.0	24.5	20.0	28.0	24.5	18.0	17.0
21	---		24.0	16.5	28.0	25.0	26.5	22.0	29.5	25.0	19.0	15.5
22	17.5	13.0	24.0	15.5	28.0	23.0	25.5	23.5	29.5	24.5	19.5	16.0
23	18.0	13.0	23.5	16.5	29.0	24.0	25.5	23.5	27.5	22.5	18.5	15.5
24	15.0	11.5	24.0	17.5	31.0	25.0	26.5	23.0	25.5	20.5	17.5	14.0
25	16.0	11.5	20.0	14.5	31.0	25.5	27.5	23.5	27.0	21.0	16.0	14.5
26	17.0	11.5	14.5	13.5	31.0	24.5	26.5	24.5	25.0	22.0	16.0	14.5
27	13.0	11.0	20.5	12.5	32.5	26.0	25.5	21.5	23.0	21.0	18.5	16.0
28	11.0	10.0	22.0	14.5	34.0	27.5	23.5	20.5	24.5	19.5	22.0	18.5
29	11.0	9.5	23.5	15.5	32.0	27.5	23.0	19.5	26.0	19.5	22.5	20.5
30	14.5	9.0	25.5	17.0	31.5	27.5	23.5	21.0	26.0	20.0	23.5	20.0
31	---	---	24.5	18.5	---	---	23.0	19.5	25.0	21.5	---	---
MONTH	---	---	26.0	---	34.0	---	30.0	---	29.5	---	27.5	---
YEAR	34.0	3.0										

[1] NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04106770 KALAMAZOO RIVER NEAR COOPER CENTER, MICH.

LOCATION.--Lat 42°22'38", long 85°34'45", in NE¼ sec.22, T.1 S., R.11 W., Kalamazoo County, on left bank 50 feet downstream from "D" Avenue bridge, 5 miles north of Kalamazoo.

DRAINAGE AREA.--1,248 sq mi.

PERIOD OF RECORD.--Specific conductance: October 1968 to August 1970; December, March to September 1971.
Water temperatures: August 1968 to May 1970; August, December 1970; August to September 1971.

EXTREMES, 1970-71:
Specific conductance: Maximum recorded, 780 umhos June 2; minimum recorded, 457 umhos Sept. 27.
Water temperatures: Maximum recorded, 31.5°C Aug. 21, 22; minimum recorded 2.0°C Dec. 25, 26.
Period of record:
Specific conductance (1968-70, 71): Maximum recorded, 830 umhos Jan. 28, 29, 1970; minimum recorded, 410 micromhos Aug. 3, 1970.
Water temperatures (1968-70, 1971): Maximum, 32.0°C Aug. 23, 24, 1968; minimum recorded, 1.0°C Jan. 28, 29, several days in Feb., 1969.

REMARKS.--Analog specific conductance recorder operated Mar.-June, digital monitor operated Dec.-Mar., Aug.-Sept. Periods of missing data due to malfunctions of the instruments. Additional analyses for this site are on page 128.

CHEMICAL ANALYSES, OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-SOLVED SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)
OCT. 09...	1130	12	450	94	84	16	14	2.6
MAR. 26...	1500	--	--	--	--	--	--	--
JULY 29...	1730	--	--	--	--	--	--	--

DATE	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)
OCT. 09...	208	0	171	90	29	.2	5.9	364	.50
MAR. 26...	235	0	193	66	26	--	4.4	308	.42
JULY 29...	253	0	208	58	35	--	3.2	332	.45

DATE	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC CONC-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT. 09...	280	110	10	.4	574	7.1	20	50
MAR. 26...	250	58	--	--	538	7.3	--	--
JULY 29...	260	52	--	--	604	7.5	20	3

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCTOBER MAX	OCTOBER MIN	NOVEMBER MAX	NOVEMBER MIN	DECEMBER MAX	DECEMBER MIN	JANUARY MAX	JANUARY MIN	FEBRUARY MAX	FEBRUARY MIN	MARCH MAX	MARCH MIN
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	605	583	---	---	---	---	---	---
17	---	---	---	---	680	583	---	---	---	---	---	---
18	---	---	---	---	639	576	---	---	---	---	---	---
19	---	---	---	---	619	595	---	---	---	---	---	---
20	---	---	---	---	597	568	---	---	---	---	---	---
21	---	---	---	---	607	541	---	---	---	---	---	---
22	---	---	---	---	643	581	---	---	---	---	---	---
23	---	---	---	---	639	587	---	---	---	---	---	---
24	---	---	---	---	613	566	---	---	---	---	---	---
25	---	---	---	---	576	561	---	---	---	---	---	---
26	---	---	---	---	607	563	---	---	---	---	---	---
27	---	---	---	---	603	574	---	---	---	---	560	550
28	---	---	---	---	650	533	---	---	---	---	570	560
29	---	---	---	---	702	655	---	---	---	---	570	560
30	---	---	---	---	---	---	---	---	---	---	580	560
31	---	---	---	---	---	---	---	---	---	---	590	560
MONTH	---	---	---	---	---	---	1080	-379	---	---	---	---

04106770 KALAMAZOO RIVER NEAR COOPER CENTER, MICH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	600	590	580	570	620	550	---	---	---	---	---	---
2	590	570	570	560	780	560	---	---	---	---	---	---
3	600	570	580	560	640	620	---	---	---	---	---	---
4	600	560	590	570	640	630	---	---	---	---	---	---
5	600	550	600	570	640	630	---	---	---	---	---	---
6	600	570	620	600	630	580	---	---	---	---	---	---
7	600	570	620	590	580	580	---	---	---	---	---	---
8	600	560	610	590	590	580	---	---	---	---	---	---
9	600	560	590	560	600	590	---	---	---	---	---	---
10	610	560	580	550	610	610	---	---	---	---	---	---
11	560	550	590	570	610	610	---	---	---	---	---	---
12	590	560	590	570	610	600	---	---	---	---	---	---
13	760	560	600	570	600	580	---	---	---	---	---	---
14	760	590	600	560	610	590	---	---	---	---	---	---
15	580	570	590	560	590	580	---	---	---	---	---	---
16	580	570	570	550	610	590	---	---	---	---	---	---
17	580	570	560	540	610	600	---	---	---	---	---	---
18	580	560	590	530	---	---	---	---	---	---	---	---
19	600	560	590	560	---	---	---	---	---	---	---	---
20	610	580	610	540	---	---	---	---	---	---	659	599
21	610	580	620	590	---	---	---	---	---	---	692	647
22	620	590	680	590	---	---	---	---	---	---	700	646
23	620	600	600	570	---	---	---	---	---	---	681	621
24	610	590	590	530	---	---	---	---	---	---	697	634
25	590	560	620	500	---	---	---	---	---	---	715	647
26	600	560	620	590	---	---	---	---	---	---	642	469
27	590	580	600	570	---	---	---	---	---	---	631	457
28	600	580	580	540	---	---	---	---	---	---	634	611
29	610	580	640	570	---	---	---	---	---	---	643	616
30	600	580	620	550	---	---	---	---	---	---	642	615
31	---	---	560	550	---	---	---	---	---	---	---	---
MONTH	760	550	680	500	---	---	---	---	---	---	---	---
YEAR	1080	-379										

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	---	---	---	---	---	---	---	---	28.5	27.0
2	---	---	---	---	---	---	---	---	---	---	29.0	28.0
3	---	---	---	---	---	---	---	---	---	---	29.5	28.5
4	---	---	---	---	---	---	---	---	24.5	23.0	30.0	29.0
5	---	---	---	---	---	---	---	---	27.5	23.0	31.0	29.5
6	---	---	---	---	---	---	---	---	28.5	23.5	30.0	28.5
7	---	---	---	---	---	---	---	---	29.0	24.5	30.0	28.0
8	---	---	---	---	---	---	---	---	27.0	23.5	31.0	29.0
9	---	---	---	---	---	---	---	---	26.5	24.0	31.0	29.5
10	---	---	---	---	---	---	---	---	29.0	25.0	31.0	29.5
11	---	---	---	---	---	---	---	---	27.5	26.0	29.5	28.0
12	---	---	---	---	---	---	---	---	27.5	24.5	28.5	27.5
13	---	---	---	---	---	---	---	---	28.0	25.5	27.0	25.0
14	---	---	---	---	---	---	---	---	28.5	27.0	27.0	23.5
15	---	---	---	---	---	---	---	---	28.0	26.5	25.5	24.0
16	---	---	---	---	5.0	3.5	---	---	26.5	25.0	24.0	22.5
17	---	---	---	---	6.5	2.5	---	---	28.5	25.0	24.5	22.0
18	---	---	---	---	4.0	2.5	---	---	29.0	26.5	23.5	22.0
19	---	---	---	---	4.5	4.0	---	---	29.5	27.5	22.5	21.0
20	---	---	---	---	4.0	3.0	---	---	30.5	28.5	20.5	18.0
21	---	---	---	---	4.5	2.5	---	---	31.5	30.0	22.0	18.0
22	---	---	---	---	5.0	3.0	---	---	31.5	30.5	21.5	18.5
23	---	---	---	---	5.5	4.5	---	---	31.0	29.5	20.0	18.5
24	---	---	---	---	5.0	3.0	---	---	29.0	28.0	20.5	17.5
25	---	---	---	---	4.0	2.0	---	---	29.5	28.5	19.5	18.5
26	---	---	---	---	4.5	2.0	---	---	29.0	28.5	20.0	17.0
27	---	---	---	---	5.5	3.5	---	---	28.5	28.0	20.0	17.0
28	---	---	---	---	6.5	5.0	---	---	28.0	27.0	22.5	20.5
29	---	---	---	---	6.5	---	---	---	28.0	26.0	23.5	22.0
30	---	---	---	---	---	---	---	---	28.0	26.0	24.5	21.5
31	---	---	---	---	---	---	---	---	27.5	27.0	---	---
MONTH	---	---	---	---	---	---	---	---	31.5	23.0	31.0	17.0

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04111000 GRAND RIVER NEAR EATON RAPIDS, MICH.

LOCATION.--Lat 42°32'05", long 84°37'25", in NE¼ sec.26, T.2 N., R.3 W., Eaton County, temperature recorder at gaging station on right bank 400 ft upstream from bridge on Petrieville Highway, 2 miles northeast of Eaton Rapids, 2.5 miles downstream from Spring Brook, 25 miles upstream from Red Cedar River, and at mile 178.
DRAINAGE AREA.--661 sq mi.
PERIOD OF RECORD.--Water temperatures: October 1963 to September 1971.
EXTREMES, 1970 to 71:
Water temperatures: Maximum, 27.0°C June 28-30, July 11; minimum, freezing point on many days in Dec. to Feb.
Period of record:
Water temperatures (1963-71): Maximum, 35.0°C Aug. 2, 1964; minimum, freezing point on many days in winter period.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	12.0	12.0	10.5	4.0	3.0	0.0	0.0	0.0	0.0	0.5	0.5
2	13.5	13.0	11.0	10.5	4.0	4.0	0.0	0.0	0.0	0.0	0.5	0.5
3	13.5	12.0	10.5	10.0	4.0	4.0	0.0	0.0	0.0	0.0	0.5	0.5
4	12.0	11.5	10.0	9.5	4.0	4.0	0.0	0.0	0.0	0.0	0.5	0.5
5	13.0	12.0	9.5	8.5	4.0	3.0	0.0	0.0	0.0	0.0	0.5	0.5
6	13.5	13.0	8.5	8.0	3.0	2.0	0.0	0.0	0.0	0.0	0.5	0.5
7	14.5	14.0	8.5	8.0	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.5
8	14.5	14.5	8.0	7.5	1.0	0.5	0.0	0.0	0.0	0.0	0.5	0.5
9	14.5	14.5	8.5	8.0	1.0	0.5	0.0	0.0	0.0	0.0	0.5	0.5
10	14.5	14.5	8.5	8.5	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0
11	14.5	13.0	8.5	8.5	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0
12	14.0	14.0	8.5	8.5	1.0	1.0	0.0	0.0	0.0	0.0	1.0	1.0
13	14.0	14.0	8.5	8.5	0.5	0.5	0.0	0.0	0.0	0.0	1.5	1.5
14	14.0	14.0	8.5	7.5	0.5	0.5	0.0	0.0	0.0	0.0	2.5	2.0
15	14.0	13.0	7.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.5
16	13.0	12.0	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.5
17	12.0	11.0	6.0	5.5	0.0	0.0	0.0	0.0	0.5	0.5	3.0	2.5
18	11.5	11.0	5.5	5.5	0.0	0.0	0.0	0.0	0.5	0.5	3.0	3.0
19	11.0	10.5	6.0	5.5	0.0	0.0	0.0	0.0	0.5	0.5	2.5	2.5
20	11.0	11.0	6.0	5.5	0.0	0.0	0.0	0.0	0.5	0.5	3.0	3.0
21	11.0	11.0	6.0	5.5	0.0	0.0	0.0	0.0	0.5	0.5	3.0	3.0
22	11.0	11.0	5.5	5.0	0.0	0.0	0.0	0.0	0.5	0.5	4.0	3.5
23	11.0	11.0	5.0	4.0	0.0	0.0	0.0	0.0	0.5	0.5	4.5	4.5
24	11.0	11.0	4.0	3.0	0.0	0.0	0.0	0.0	0.5	0.5	4.5	4.0
25	11.5	11.0	2.5	1.5	0.0	0.0	0.0	0.0	0.5	0.5	4.5	3.5
26	11.5	11.5	1.5	1.5	0.0	0.0	0.0	0.0	0.5	0.5	5.0	4.5
27	12.0	11.5	1.5	1.5	0.0	0.0	0.0	0.0	0.5	0.5	5.0	5.0
28	12.0	12.0	2.0	1.5	0.0	0.0	0.0	0.0	0.5	0.5	5.0	5.0
29	12.0	12.0	2.5	2.0	0.0	0.0	0.0	0.0	---	---	5.0	5.0
30	12.0	12.0	3.5	2.5	0.0	0.0	0.0	0.0	---	---	6.5	5.5
31	12.0	12.0	---	---	0.0	0.0	0.0	0.0	---	---	7.0	6.5
MONTH	14.5	10.5	12.0	1.5	4.0	0.0	0.0	0.0	0.5	0.0	7.0	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.5	7.0	9.5	9.0	17.0	17.0	26.5	25.5	24.0	19.5	22.0	20.0
2	7.0	7.0	9.5	9.5	17.0	16.5	25.5	24.5	23.5	21.5	23.0	21.0
3	7.0	7.0	10.5	9.5	19.5	17.5	25.5	23.5	22.0	20.5	23.0	22.0
4	7.0	6.5	10.5	10.5	19.5	18.5	24.5	24.0	21.5	20.5	23.0	22.0
5	6.5	6.0	11.5	11.0	20.5	19.5	24.5	24.0	23.5	19.5	25.5	22.5
6	6.0	5.5	13.5	11.5	21.0	20.5	24.0	23.5	23.5	20.0	24.5	22.5
7	6.5	6.0	13.5	13.0	22.5	21.0	24.0	24.0	22.5	20.0	25.5	22.0
8	7.0	6.0	15.0	13.5	22.5	20.5	24.5	24.5	23.0	20.5	26.5	22.5
9	7.0	7.0	15.0	14.5	20.5	19.5	24.5	24.5	23.0	21.0	25.5	22.0
10	7.5	6.5	16.0	14.5	20.5	19.5	24.5	24.5	25.5	22.5	24.5	22.0
11	9.5	7.5	16.0	16.0	20.5	20.0	27.0	24.5	25.5	22.5	22.5	21.0
12	10.0	9.0	16.0	14.5	22.5	20.5	26.0	23.5	23.5	20.0	21.5	20.5
13	10.0	10.0	15.0	14.0	22.5	21.0	25.0	24.5	23.0	21.0	20.5	19.5
14	9.5	9.5	16.0	14.0	22.0	21.0	25.0	23.0	23.0	22.5	23.0	18.5
15	9.5	9.5	17.0	15.0	22.0	21.0	24.0	23.0	22.5	21.5	21.5	19.5
16	10.0	9.5	18.0	16.5	22.0	20.5	23.0	22.0	22.0	19.5	20.0	18.5
17	10.5	10.0	18.0	16.5	22.0	21.5	23.5	23.0	22.0	19.5	19.5	18.0
18	11.5	10.5	19.0	18.0	23.0	22.0	25.5	23.0	25.5	20.0	19.0	17.0
19	12.5	11.5	19.0	18.5	24.0	23.0	25.5	23.0	25.0	21.0	18.0	17.0
20	12.5	12.5	19.0	17.0	24.0	24.0	23.0	21.0	26.0	22.5	17.0	17.0
21	12.5	12.5	17.0	16.0	24.0	23.0	23.0	21.0	25.0	23.0	19.0	15.0
22	12.5	12.5	17.0	15.5	23.0	22.0	23.0	22.0	24.5	22.0	17.5	15.0
23	12.5	12.0	17.0	16.5	23.0	21.5	23.0	23.0	24.0	20.5	17.0	15.5
24	12.5	11.0	17.0	16.5	24.0	22.5	23.0	23.0	22.5	19.5	17.0	13.5
25	11.0	10.5	17.0	15.0	24.0	24.0	24.0	22.0	26.0	21.0	15.0	13.0
26	10.5	10.0	15.0	14.0	24.0	23.5	23.5	22.5	23.5	21.5	14.0	13.5
27	10.0	10.0	14.0	13.5	26.0	24.0	23.0	20.5	22.5	21.0	14.5	14.0
28	10.0	9.0	15.0	14.0	27.0	26.0	22.5	20.5	21.5	20.0	17.0	14.5
29	9.0	8.0	17.0	15.0	27.0	25.5	21.5	20.5	25.5	19.0	17.0	17.0
30	9.0	7.5	17.0	16.0	27.0	26.0	21.5	21.5	24.5	20.0	17.0	17.0
31	---	---	17.0	16.5	---	---	21.5	20.5	23.0	20.0	---	---
MONTH	12.5	5.5	19.0	9.0	27.0	16.5	27.0	20.5	26.0	19.0	26.5	13.0
YEAR	27.0	0.0										

04113000 GRAND RIVER AT LANSING, MICH.

LOCATION.--Lat 42°45'02", long 84°33'19", in NW¼ sec.9, T.4 N., R.2 W., Ingham County, temperature recorder at gaging station on right bank 30 ft upstream from bridge on North Grand River Ave. in Lansing, 2.0 miles downstream from Red Cedar River, and at mile 152.

DRAINAGE AREA.--1,230 sq mi., approximately.

PERIOD OF RECORD.--Water temperatures: October 1963 to September 1964, October 1966 to September 1962, October 1969 to September 1971.

EXTREMES, 1970 to 71.

Water temperatures: Maximum, 29.5°C June 20-22, 28-30; minimum, 1.5°C Feb. 21-28, Mar. 1-3, 6-9.

Period of record:

Water temperatures (1966-71): Maximum, 32.0°C Aug. 19, 20, 1969; minimum, 1.5°C Mar. 7, 1970, Feb. 21-28, Mar. 1-3, 6-9, 1971.

REMARKS.--No temperature record July 16-19 due to malfunction of recorder. Flow regulated by powerplants above station.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	16.5	14.0	13.5	4.5	4.5	5.0	4.5	3.0	3.0	1.5	1.5
2	17.0	17.0	13.5	12.5	5.0	4.5	4.5	4.0	3.0	2.5	1.5	1.5
3	17.0	16.0	12.0	12.0	5.5	5.0	4.0	4.0	2.5	2.5	2.0	1.5
4	16.0	15.5	12.0	11.5	6.0	5.5	4.5	4.0	2.5	2.5	2.0	2.0
5	15.5	15.0	11.5	11.0	6.0	6.0	5.0	4.5	2.5	2.5	2.0	2.0
6	16.5	15.5	11.0	10.5	6.0	5.5	5.5	5.0	3.0	2.5	1.5	1.5
7	16.5	16.5	10.5	10.0	5.5	5.0	5.5	5.5	3.0	2.5	1.5	1.5
8	17.0	16.5	10.0	10.0	5.0	4.5	5.5	5.5	3.0	3.0	1.5	1.5
9	17.5	17.0	10.0	10.0	4.5	4.5	5.5	5.0	3.0	3.0	2.0	1.5
10	17.5	17.5	10.0	10.0	4.5	4.5	5.0	4.5	3.0	3.0	2.0	2.0
11	17.0	16.0	10.0	10.0	4.5	4.5	4.5	4.5	3.0	3.0	2.0	2.0
12	16.0	16.0	10.0	10.0	5.0	4.5	4.5	4.5	3.5	3.0	2.0	2.0
13	16.0	16.0	9.5	9.5	4.5	4.5	5.0	5.0	4.0	3.5	2.0	2.0
14	17.0	16.0	9.5	9.5	4.5	4.0	5.0	5.0	4.0	4.0	2.0	2.0
15	17.0	17.0	9.5	9.5	4.0	4.0	5.0	5.0	4.0	4.0	2.5	2.0
16	17.0	16.0	8.5	7.5	4.0	4.0	5.0	5.0	4.0	4.0	2.5	2.5
17	16.0	15.5	7.5	7.5	4.5	4.5	4.5	4.0	4.0	4.0	2.5	2.0
18	15.5	15.0	7.5	7.5	4.5	4.5	4.5	4.0	4.0	4.0	3.0	2.5
19	15.0	14.5	7.5	7.5	4.5	4.5	4.0	4.0	4.0	3.5	2.5	2.5
20	14.5	14.5	7.5	7.5	4.5	4.5	4.0	4.0	3.0	2.5	2.5	2.5
21	14.0	14.0	7.5	7.5	4.5	4.0	4.0	3.5	2.5	1.5	2.5	2.5
22	14.0	14.0	7.5	7.5	4.0	4.0	3.5	3.5	1.5	1.5	2.5	2.5
23	14.0	14.0	7.5	7.0	4.5	4.5	4.0	3.5	1.5	1.5	3.0	2.5
24	14.0	14.0	6.5	6.0	4.5	4.5	3.5	3.0	1.5	1.5	3.5	3.0
25	14.0	14.0	6.0	5.0	4.5	4.5	3.5	3.0	1.5	1.5	3.5	3.0
26	13.5	13.5	5.0	4.5	4.5	4.0	3.5	3.0	1.5	1.5	3.5	3.0
27	13.5	13.5	4.5	4.5	4.0	4.0	3.5	3.5	1.5	1.5	4.0	4.0
28	14.0	13.5	4.5	4.5	4.0	4.0	3.5	3.0	1.5	1.5	4.0	4.0
29	14.0	14.0	4.5	4.5	4.5	4.0	3.0	3.0	---	---	4.5	4.0
30	14.0	14.0	4.5	4.5	5.0	4.5	3.0	3.0	---	---	5.0	4.5
31	14.0	14.0	---	---	5.0	5.0	3.0	3.0	---	---	5.0	5.0
MONTH	17.5	13.5	14.0	4.5	6.0	4.0	5.5	3.0	4.0	1.5	5.0	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.5	5.0	13.5	13.5	25.5	24.5	29.0	28.5	24.0	23.5	26.0	25.0
2	6.0	5.5	14.0	14.0	25.0	24.5	28.5	27.5	24.0	23.5	26.0	25.0
3	6.0	6.0	14.0	14.0	26.5	25.0	27.5	26.5	24.0	23.5	26.5	26.0
4	6.0	6.0	15.0	14.0	28.0	26.5	26.5	26.5	24.0	23.5	27.0	26.5
5	6.0	5.5	15.5	15.0	29.0	28.0	26.5	26.5	24.0	23.5	28.0	27.0
6	5.5	5.5	17.5	16.5	28.5	28.0	27.5	26.5	24.0	23.5	28.0	27.5
7	6.5	6.0	18.0	17.5	29.0	28.5	27.5	27.0	24.5	24.0	28.0	27.0
8	7.5	6.5	19.5	18.0	29.0	27.5	28.0	27.5	25.5	25.5	28.5	28.0
9	8.0	7.5	20.0	20.0	27.5	26.5	28.0	27.5	26.0	25.5	28.5	28.0
10	8.5	8.0	20.5	20.0	27.0	25.5	28.5	27.5	26.5	26.0	28.0	27.5
11	9.0	8.5	21.5	21.0	26.5	25.5	28.0	26.5	26.5	26.0	27.5	26.5
12	9.5	8.5	22.0	21.5	28.0	26.5	27.0	26.0	26.0	24.5	27.5	25.5
13	10.5	9.5	21.5	19.5	27.5	27.5	25.5	25.5	25.5	24.5	25.5	25.0
14	10.5	10.5	22.0	21.5	28.0	27.5	25.5	24.5	26.5	25.5	26.0	25.0
15	10.5	10.5	23.5	22.5	28.5	28.0	25.0	24.0	26.5	25.5	26.0	26.0
16	11.5	11.0	23.5	23.0	29.0	28.5	---	---	26.0	25.0	26.0	24.5
17	12.0	11.5	24.5	23.5	29.0	28.0	---	---	26.0	25.5	24.5	24.0
18	12.0	12.0	26.0	25.0	28.5	28.0	---	---	26.5	26.0	25.0	24.0
19	12.5	12.0	26.5	26.0	29.0	28.0	---	---	26.5	26.5	24.0	23.5
20	13.5	12.5	27.0	26.5	29.5	28.5	24.0	24.0	27.5	26.5	23.5	23.0
21	14.0	13.5	27.5	26.0	29.5	29.5	24.5	24.0	27.5	27.5	23.0	22.5
22	14.0	14.0	26.0	25.0	29.5	28.0	25.0	24.5	28.0	27.5	23.0	22.5
23	14.5	14.0	26.0	25.0	28.5	28.0	25.0	25.0	27.5	26.5	23.0	23.0
24	14.5	14.0	25.5	24.5	28.0	27.5	25.0	25.0	26.5	25.0	23.0	21.5
25	14.0	13.5	26.5	25.5	28.0	27.5	26.0	25.0	26.0	25.0	22.0	21.0
26	14.0	13.5	25.5	23.5	28.0	27.5	26.0	26.0	26.0	25.5	21.0	20.5
27	13.5	13.5	24.5	23.5	28.5	27.5	26.0	25.0	25.5	24.5	21.5	20.5
28	13.5	13.5	25.5	24.5	29.5	28.5	25.0	24.0	24.5	24.5	23.5	21.5
29	13.5	13.5	26.0	25.5	29.5	29.0	24.0	24.0	25.5	24.5	25.0	23.5
30	13.5	13.5	26.0	25.5	29.5	29.0	24.0	24.0	26.0	25.5	25.5	25.0
31	---	---	25.5	25.0	---	---	24.0	23.5	27.0	26.0	---	---
MONTH	14.5	5.0	27.5	13.5	29.5	24.5	29.0	23.5	28.0	23.5	28.5	20.5
YEAR	29.5	1.5										

04121500 MUSKEGON RIVER AT EVART, MICH.

LOCATION.--Lat 43°53'57", long 85°15'19", in NW¼ NE¼ sec.3, T.17 N., R.8 W., Osceola County, temperature recorder at gaging station on right bank, 500 ft downstream from bridge on U. S. Highway 10 at Evart, 0.4 mile upstream from Twin Creek, and at mile 123.9.
DRAINAGE AREA.--1,450 sq mi, approximately.
PERIOD OF RECORD.--Water temperatures: November 1956 to September 1971.
EXTREMES, 1970-71:
Water temperatures: Maximum 27.0°C June 29; minimum, freezing point on many days during November to March.
Period of record:
Water temperatures (1956-71): Maximum, 28.0°C July 1, 1963; minimum, freezing point on many days during winter months.
REMARKS.--Intermittent ice cover during the winter period.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	9.5	9.0	8.0	2.0	1.0	0.0	0.0	0.5	0.5	0.0	0.0
2	12.0	10.5	8.0	7.0	2.0	2.0	0.0	0.0	0.5	0.5	0.0	0.0
3	11.5	10.5	7.0	7.0	2.0	1.5	0.0	0.0	0.5	0.0	0.0	0.0
4	10.5	9.5	7.0	7.0	1.5	1.0	0.0	0.0	0.0	0.0	0.5	0.0
5	11.5	9.0	7.0	6.5	1.5	1.0	0.0	0.0	0.0	0.0	0.5	0.0
6	13.5	11.0	6.5	6.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
7	14.5	13.0	6.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
8	14.5	13.5	6.0	5.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
9	14.5	14.5	5.5	5.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
10	14.5	12.0	6.0	5.0	0.5	0.5	0.0	0.0	0.5	0.0	0.5	0.5
11	12.0	11.0	6.0	6.0	0.5	0.5	0.0	0.0	0.5	0.5	0.5	0.5
12	11.5	11.0	6.5	6.0	0.5	0.5	0.0	0.0	0.5	0.5	0.5	0.0
13	11.5	11.0	6.5	6.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0
14	11.5	11.0	6.0	5.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0
15	11.0	9.5	5.0	4.0	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0
16	9.5	8.5	4.0	3.5	0.5	0.5	0.0	0.0	0.5	0.5	0.0	0.0
17	9.0	8.0	3.5	3.0	0.5	0.5	0.0	0.0	0.5	0.0	0.5	0.0
18	9.5	8.0	3.5	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
19	9.5	9.0	3.5	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
20	9.5	9.5	4.0	3.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
21	9.5	9.5	4.0	3.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.0
22	10.0	9.0	3.5	3.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	0.5
23	10.0	9.5	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
24	11.0	10.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
25	11.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
26	11.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
27	11.0	10.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
28	11.0	11.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
29	11.0	10.0	1.0	1.0	0.0	0.0	0.0	0.0	---	---	0.5	0.5
30	10.0	9.0	1.0	1.0	0.0	0.0	0.0	0.0	---	---	0.5	0.5
31	9.5	9.0	---	---	0.0	0.0	0.5	0.0	---	---	0.5	0.5
MONTH	14.5	8.0	9.0	0.0	2.0	0.0	0.5	0.0	0.5	0.0	1.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.5	0.5	8.0	7.0	16.0	14.5	25.5	23.5	19.0	15.5	19.0	18.0
2	1.0	0.5	8.0	7.0	14.5	14.0	24.5	21.5	18.5	17.0	20.0	18.0
3	1.0	1.0	8.5	6.5	16.5	14.0	24.0	20.5	18.0	16.0	21.5	20.0
4	1.0	1.0	9.0	8.0	19.0	16.0	23.5	20.5	19.5	15.5	22.0	20.5
5	1.5	0.5	10.5	9.0	20.0	18.5	24.0	21.0	20.0	16.0	22.0	21.0
6	1.5	1.0	13.0	10.5	20.5	19.0	24.5	21.0	20.5	16.5	23.0	21.0
7	1.5	1.5	14.0	11.5	21.5	20.0	24.5	21.5	21.5	17.0	23.5	21.0
8	2.0	1.5	14.0	13.0	21.0	20.0	24.0	21.5	23.0	18.5	23.5	21.0
9	2.0	1.5	15.0	13.5	20.5	18.5	24.0	21.0	22.0	20.0	21.5	19.5
10	1.5	1.0	15.5	14.0	19.5	17.0	23.5	20.5	22.0	20.5	21.0	19.0
11	4.0	1.5	15.5	13.0	20.0	18.5	24.0	20.5	21.0	19.0	20.0	18.0
12	5.5	4.0	15.0	11.5	22.0	19.5	22.0	19.5	20.5	18.0	18.0	17.0
13	5.5	5.5	12.0	10.5	22.0	20.5	23.0	20.0	22.0	19.0	19.5	16.5
14	5.5	5.0	13.5	10.5	23.0	21.0	22.0	19.5	23.0	20.5	20.0	16.5
15	5.5	5.5	14.5	12.0	23.0	20.0	21.5	19.0	23.0	19.5	19.5	17.0
16	7.0	5.5	16.0	14.5	22.0	20.5	21.5	18.5	22.0	19.0	18.0	15.5
17	8.5	7.0	16.5	15.0	23.0	20.0	21.5	19.0	22.0	18.5	17.0	15.5
18	9.5	8.5	18.0	16.0	23.5	21.5	20.5	18.0	22.0	19.0	16.0	14.0
19	10.5	9.5	18.0	17.0	25.0	22.0	19.5	18.0	21.0	19.0	15.0	14.0
20	11.5	10.5	17.0	16.0	24.5	23.5	20.0	16.5	22.0	19.5	14.5	14.0
21	11.5	11.5	16.0	15.0	24.0	22.0	20.0	16.5	23.5	20.0	15.0	12.0
22	11.5	10.5	15.5	13.5	23.0	20.5	22.0	19.0	22.0	19.5	15.5	13.0
23	11.0	10.5	15.0	14.0	23.5	21.0	21.5	20.0	20.0	18.0	15.0	13.5
24	10.5	8.5	14.5	14.0	23.0	21.0	23.0	19.5	19.5	16.5	14.5	11.5
25	8.5	8.0	14.0	13.0	23.0	20.5	22.0	19.5	19.5	16.5	13.5	11.0
26	8.0	7.0	13.0	11.0	23.5	20.5	21.5	19.0	19.0	18.0	12.0	11.5
27	8.0	7.0	13.5	10.5	25.0	21.0	19.0	16.5	18.5	17.0	14.0	11.5
28	7.0	6.5	14.5	12.0	26.5	23.0	19.0	16.5	19.5	16.5	17.0	14.0
29	6.5	6.0	15.5	13.5	27.0	24.0	18.5	15.0	20.5	17.0	18.5	16.0
30	7.0	6.0	16.5	15.0	26.5	24.5	18.0	15.5	20.5	18.0	18.0	16.0
31	---	---	16.5	16.0	---	---	17.0	15.5	20.0	18.0	---	---
MONTH	11.5	0.5	18.0	6.5	27.0	14.0	25.5	15.0	23.5	15.5	23.5	11.0
YEAR	27.0	0.0										

04121900 LITTLE MUSKEGON RIVER NEAR MORLEY, MICH.

LOCATION.—Lat 43°30'09", long 85°20'33", in SW¼ SW¼ sec.24, T.13 N., R.9 W., Mecosta County, temperature recorder at gaging station on right bank at upstream side of highway bridge on 130th Avenue, 0.5 mile downstream from Rustford Dam, and 5.2 miles east of Morley.
DRAINAGE AREA.—138 sq mi.
PERIOD OF RECORD.—Water temperatures: November 1966 to September 1971.
EXTREMES, 1970-71:
Water temperatures: Maximum, 28.0°C June 28, minimum, freezing point on many days during November to March.
Period of record:
Water temperatures(1966-71): Maximum, 28.0°C Aug. 23, 1968, June 28, 1971; minimum, freezing point on many days during winter period.
REMARKS.—Intermittent ice cover during the winter months. Recorder stopped Jan. 8 to March. 9, range in temperature 0 to 3.5°C. Some regulation from dams above station.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.5	8.5	8.0	7.0	7.0	4.0	0.0	0.0	---	---	---	---
2	14.0	10.5	7.5	6.5	6.0	4.0	0.0	0.0	---	---	---	---
3	12.0	10.0	7.0	7.0	4.0	3.0	0.0	0.0	---	---	---	---
4	10.5	8.0	7.0	6.5	3.0	2.0	0.0	0.0	---	---	---	---
5	13.0	8.5	6.5	6.0	2.0	0.5	0.0	0.0	---	---	---	---
6	15.0	11.5	7.5	5.5	0.5	0.0	0.0	0.0	---	---	---	---
7	15.5	13.0	7.0	5.5	0.5	0.0	0.0	0.0	---	---	---	---
8	15.5	13.5	6.0	4.5	2.0	0.5	---	---	---	---	---	---
9	14.5	14.0	7.5	5.5	4.0	2.0	---	---	---	---	1.5	0.5
10	14.0	11.0	8.5	7.5	3.5	1.5	---	---	---	---	2.0	0.5
11	12.0	9.0	8.0	8.0	1.5	0.5	---	---	---	---	3.5	1.0
12	12.5	10.0	8.5	7.5	2.0	0.5	---	---	---	---	2.5	1.0
13	12.0	11.5	8.0	7.0	2.0	1.5	---	---	---	---	4.0	2.5
14	12.5	10.5	7.0	4.5	2.0	1.0	---	---	---	---	6.5	3.5
15	10.5	8.5	4.5	3.0	1.0	0.5	---	---	---	---	5.5	1.0
16	9.5	7.0	4.0	3.0	0.5	0.5	---	---	---	---	2.5	0.5
17	10.0	6.5	5.5	4.0	2.0	0.5	---	---	---	---	2.5	0.5
18	11.5	7.5	5.0	4.5	2.5	2.0	---	---	---	---	2.5	1.0
19	11.5	9.0	6.5	5.0	3.0	2.5	---	---	---	---	1.5	0.5
20	10.0	9.0	5.5	5.0	2.5	1.0	---	---	---	---	2.5	0.5
21	10.5	9.0	5.0	4.0	1.0	0.5	---	---	---	---	1.5	0.5
22	11.0	8.0	4.5	2.0	0.5	0.5	---	---	---	---	2.5	0.5
23	11.0	9.0	2.0	0.0	0.5	0.0	---	---	---	---	4.0	1.5
24	12.0	10.0	0.5	0.0	0.0	0.0	---	---	---	---	3.0	1.0
25	12.0	10.0	0.0	0.0	0.0	0.0	---	---	---	---	4.0	1.0
26	10.0	9.5	2.5	0.0	0.0	0.0	---	---	---	---	4.5	1.0
27	12.0	10.0	3.0	2.5	0.0	0.0	---	---	---	---	4.5	2.0
28	11.0	10.5	3.5	2.5	0.0	0.0	---	---	---	---	4.5	3.0
29	11.0	9.0	3.0	3.0	0.0	0.0	---	---	---	---	4.5	3.0
30	9.0	7.0	4.0	3.0	0.5	0.0	---	---	---	---	6.5	2.0
31	9.0	8.0	---	---	0.0	0.0	---	---	---	---	5.5	3.0
MONTH	15.5	6.5	8.5	0.0	7.0	0.0	---	---	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	3.0	10.0	8.5	13.5	11.5	25.5	20.5	22.0	13.5	21.0	16.5
2	3.0	1.5	9.0	7.0	13.0	12.0	25.0	17.0	18.5	15.5	22.0	17.0
3	2.5	1.0	12.0	6.0	19.0	12.0	25.0	16.5	20.5	13.5	22.0	18.5
4	3.5	1.0	10.5	7.0	21.0	15.0	23.5	17.5	22.0	15.0	22.5	20.5
5	5.0	1.0	14.0	8.5	21.0	17.0	24.0	19.0	22.5	14.0	21.5	19.5
6	6.0	2.0	16.5	10.0	22.0	17.0	25.0	18.0	23.0	14.0	23.0	18.5
7	7.0	3.0	16.0	10.5	22.0	17.5	24.5	18.0	24.0	15.0	24.5	19.0
8	8.0	3.5	17.0	11.0	19.0	15.5	21.0	18.5	24.5	16.0	24.5	19.0
9	7.5	5.5	18.0	12.0	20.5	13.5	24.0	17.5	23.5	17.5	22.5	17.5
10	8.0	3.5	18.0	11.5	21.0	13.5	23.5	17.0	24.0	17.5	21.0	17.5
11	10.0	5.5	15.5	12.5	21.0	16.0	24.5	17.0	22.0	16.5	17.5	16.0
12	11.0	9.0	13.0	9.0	25.0	18.0	23.5	16.0	21.5	14.0	17.0	15.5
13	11.0	7.5	14.0	7.0	23.5	19.0	24.5	19.5	24.0	16.5	20.5	15.5
14	9.0	6.0	17.0	9.5	24.0	18.5	24.5	17.0	22.5	19.0	21.5	15.0
15	10.5	6.5	18.5	11.5	24.5	18.0	22.5	16.0	23.5	16.5	20.0	16.0
16	12.0	8.0	20.5	14.0	25.0	19.0	24.0	16.0	23.5	15.5	18.0	13.5
17	13.0	11.0	18.5	12.5	25.0	18.5	24.0	16.5	24.0	15.5	17.5	14.5
18	12.5	9.5	20.0	15.0	25.0	19.5	20.5	14.5	23.5	15.5	15.5	13.0
19	13.5	9.0	18.0	14.5	26.5	20.5	20.0	16.0	21.5	16.0	14.0	13.0
20	15.5	10.5	17.0	12.0	26.5	22.0	21.5	14.5	24.5	18.0	14.5	12.5
21	14.5	11.0	15.0	11.5	26.5	20.5	22.0	15.5	25.0	18.5	15.5	10.5
22	14.0	9.5	17.5	10.0	24.0	18.0	25.0	18.0	23.5	16.5	16.0	11.0
23	13.0	8.5	15.5	11.5	25.5	19.0	22.0	19.5	22.0	15.0	14.0	11.0
24	11.0	8.0	16.0	12.5	25.0	19.0	24.0	18.0	16.5	13.5	14.5	9.5
25	11.0	7.0	14.5	10.5	26.0	19.5	24.0	17.5	22.0	15.0	11.5	9.5
26	12.5	7.5	11.0	9.5	27.0	20.0	22.5	18.5	18.0	16.0	12.0	11.0
27	10.5	7.5	16.0	8.5	27.5	20.0	21.5	14.5	18.5	16.0	14.5	12.0
28	7.5	6.5	18.0	10.0	28.0	22.0	17.5	15.0	21.0	15.0	18.5	14.0
29	8.5	6.5	19.5	11.5	27.5	21.0	20.5	13.0	23.0	15.0	19.5	16.0
30	10.5	6.0	20.0	12.0	26.5	22.0	18.0	14.5	23.5	16.0	19.0	15.0
31	---	---	17.0	13.5	---	---	18.5	13.5	20.5	17.0	---	---
MONTH	15.5	1.0	20.5	6.0	28.0	11.5	25.5	13.0	25.0	13.5	24.5	9.5
YEAR	28.0	0.0										

04122500 PERE MARQUETTE RIVER AT SCOTTVILLE, MICH.

LOCATION.—Lat 43°56'42", long 86°16'43", in NW¼ NW¼ sec.19, T.18 N., R.16 W., Mason County, temperature recorder at gaging station on right bank 20 ft upstream from highway bridge at south edge of Scottville, 1.4 miles upstream from India Creek, 5.6 miles downstream from Big South Branch.

DRAINAGE AREA.—709 sq mi.

PERIOD OF RECORD.—Water temperatures: May 1968 to September 1971.

EXTREMES, 1970-71:

Water temperatures: Maximum, 24.5°C June 29, 30; minimum, freezing point on many days during January to March.

Period of record:

Water temperatures (1968-71): Maximum, 24.5°C June 29, 30, 1971; minimum, freezing point on many days during winter period.

REMARKS.—Complete ice cover during winter months. Recorder pen not marking May 10 to June 3, range not recorded.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	10.0	8.0	7.0	5.0	3.5	0.5	0.5	0.0	0.0	0.0	0.0
2	12.0	11.0	7.0	6.5	5.0	4.5	0.5	0.0	0.0	0.0	0.0	0.0
3	12.0	11.0	6.5	6.5	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0
4	11.0	10.0	6.5	6.5	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
5	11.5	9.5	6.5	6.0	3.5	2.0	0.0	0.0	0.0	0.0	0.5	0.0
6	12.5	11.0	6.0	5.5	2.0	1.0	0.0	0.0	0.0	0.0	0.5	0.5
7	13.0	12.5	6.0	5.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.5
8	14.0	13.0	5.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0
9	14.0	14.0	6.0	5.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
10	14.0	12.5	6.5	6.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
11	12.5	10.5	7.0	6.5	2.0	1.5	0.0	0.0	0.0	0.0	1.0	0.0
12	11.0	10.5	7.0	7.0	1.5	1.0	0.0	0.0	0.0	0.0	1.0	0.5
13	10.5	10.0	7.0	7.0	1.0	1.0	0.0	0.0	0.0	0.0	2.5	1.0
14	10.5	10.5	7.0	5.5	1.0	1.0	0.0	0.0	0.0	0.0	3.5	2.5
15	10.5	9.0	5.5	4.5	1.0	0.5	0.0	0.0	0.0	0.0	3.5	1.0
16	9.0	7.5	4.5	4.0	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.5
17	8.0	7.0	4.0	4.0	0.5	0.5	0.0	0.0	0.5	0.0	0.5	0.5
18	8.0	7.5	4.5	4.0	1.0	0.5	0.0	0.0	0.5	0.5	0.5	0.5
19	9.0	8.0	5.0	4.5	2.0	1.0	0.0	0.0	0.5	0.5	0.5	0.0
20	9.0	9.0	5.0	5.0	2.0	1.5	0.0	0.0	0.5	0.5	0.0	0.0
21	9.0	9.0	5.0	5.0	1.5	1.0	0.0	0.0	0.5	0.5	0.0	0.0
22	10.0	9.0	5.0	3.5	1.0	0.5	0.0	0.0	0.5	0.5	0.5	0.0
23	10.0	10.0	3.5	1.0	0.5	0.5	0.0	0.0	0.5	0.0	0.5	0.5
24	10.0	10.0	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5
25	10.5	10.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.5
26	10.5	10.0	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	2.0	0.5
27	10.0	10.0	2.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	2.0	1.5
28	10.0	9.5	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	2.5	1.5
29	9.5	9.5	2.5	2.0	0.5	0.5	0.0	0.0	---	---	3.0	2.5
30	9.5	8.0	3.5	2.5	0.5	0.5	0.0	0.0	---	---	3.5	2.0
31	8.5	8.0	---	---	0.5	0.5	0.0	0.0	---	---	3.5	3.0
MONTH	14.0	7.0	8.0	0.5	5.0	0.5	0.5	0.0	0.5	0.0	3.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	3.5	10.0	9.0	---	---	23.5	21.5	18.0	16.5	17.5	17.0
2	3.5	2.0	9.5	8.0	---	---	22.0	20.0	19.0	18.0	19.0	17.0
3	2.0	1.0	10.5	7.0	---	---	21.0	19.0	19.0	17.5	19.0	18.5
4	1.5	0.5	10.5	8.5	18.0	16.0	21.0	19.5	18.5	16.5	19.5	19.0
5	2.5	1.0	13.0	9.0	19.5	17.5	21.5	20.5	18.5	17.0	20.5	19.5
6	4.0	2.0	14.0	11.5	20.5	19.0	22.0	20.0	18.5	16.5	20.5	19.5
7	6.5	4.0	14.5	12.0	20.5	19.0	22.0	20.5	19.0	17.0	20.0	19.5
8	7.5	5.5	15.0	12.5	20.5	18.0	21.5	20.5	20.0	18.0	20.0	19.0
9	8.5	7.5	15.5	13.0	19.0	16.5	21.0	19.5	20.5	19.0	19.0	18.0
10	8.5	7.0	---	---	18.5	16.0	21.0	19.0	20.5	20.0	19.0	18.5
11	9.0	8.0	---	---	18.5	17.0	21.0	19.0	20.0	19.0	19.0	17.5
12	10.0	9.0	---	---	20.5	18.0	21.0	19.0	19.5	18.0	17.0	16.5
13	10.0	9.5	---	---	21.0	20.0	21.5	20.0	21.0	18.5	16.5	15.5
14	9.5	8.5	---	---	21.0	19.5	21.5	19.5	21.0	20.0	16.0	15.5
15	9.5	9.0	---	---	21.0	19.5	21.0	19.0	20.0	18.5	16.5	16.0
16	11.0	9.5	---	---	21.0	19.0	21.0	19.0	20.0	18.0	16.5	15.0
17	13.5	11.0	---	---	21.0	19.0	21.0	19.0	19.5	17.5	15.5	15.0
18	14.0	13.0	---	---	21.0	19.5	20.0	18.0	19.5	18.0	15.5	14.0
19	14.0	13.0	---	---	21.0	19.5	18.5	17.5	19.0	18.0	14.0	14.0
20	14.5	14.0	---	---	21.0	20.0	19.0	17.0	20.0	18.5	14.0	13.5
21	14.5	13.5	---	---	20.5	19.0	20.5	18.0	20.5	19.5	13.5	12.0
22	14.0	12.0	---	---	20.5	19.0	21.5	20.0	20.0	18.0	13.5	13.0
23	13.0	11.0	---	---	21.0	19.5	21.5	20.5	18.5	17.0	13.5	13.0
24	12.5	9.5	---	---	21.0	19.5	21.5	19.5	17.5	15.5	13.0	11.5
25	10.5	9.0	---	---	21.0	20.0	21.5	19.5	16.5	15.5	12.0	11.0
26	10.5	9.0	---	---	21.5	20.0	21.0	20.0	16.5	16.0	11.5	11.0
27	10.0	8.5	---	---	23.0	20.0	20.0	17.5	16.0	15.5	12.5	11.5
28	8.5	8.0	---	---	24.0	22.0	19.0	18.0	16.5	15.0	16.0	13.0
29	8.0	7.5	---	---	24.5	23.0	18.5	16.5	17.5	15.5	16.0	16.0
30	10.5	7.0	---	---	24.5	23.0	18.5	16.5	17.5	16.5	16.5	15.5
31	---	---	---	---	---	---	17.5	16.0	17.5	16.5	---	---
MONTH	14.5	0.5	---	---	24.5	16.0	23.5	16.0	21.0	15.0	20.5	11.0
YEAR	24.5	0.0										

04123500 MANISTEE RIVER NEAR GRAYLING, MICH.

LOCATION.—Lat 44°41'35", long 84°50'50", in SW¼ NW¼ sec.31, T.27 N., R.4 W., Crawford County, temperature recorder at gaging station on right bank, 25 ft upstream from bridge on State Highway 72, 3.3 miles downstream from Goose Creek, and 6.8 miles northwest of Grayling.
DRAINAGE AREA.—159 sq mi.
PERIOD OF RECORD.—Water temperatures: May 1957 to September 1971.
EXTREMES, 1970-71.
Water temperatures: Maximum, 22.5°C June 28, 29; minimum, freezing point on many days during December to March.
Period of record:
Water temperatures (1957-71): Maximum, 24.0°C July 1, 1963; minimum, freezing point on many days during winter months.
REMARKS.—Recorder stopped Jan. 19-22, May 28 to June 1, June 3, 4, 9, 10; range in temperature, 1.0°C, 10.5°C to 16.5°C, 10.5°C to 16.5°C, 12.0°C to 16.5°C, respectively. A summary of periodic specific conductance data for this station is on page 77.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	7.0	6.5	5.5	5.0	4.0	0.0	0.0	0.0	0.0	1.5	0.0
2	10.0	9.0	5.5	5.0	5.0	4.0	0.0	0.0	0.0	0.0	1.5	0.5
3	10.0	9.0	5.5	5.0	4.0	2.0	0.0	0.0	0.0	0.0	1.0	0.5
4	9.0	7.5	5.5	5.0	2.0	1.0	0.0	0.0	0.0	0.0	1.0	0.5
5	9.5	7.5	5.5	5.0	1.5	1.0	0.0	0.0	0.0	0.0	2.0	0.5
6	11.5	9.5	6.0	5.5	1.5	1.0	0.0	0.0	0.0	0.0	2.5	2.0
7	12.0	11.5	6.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	2.0	0.5
8	11.5	10.5	5.5	3.5	1.5	0.5	0.0	0.0	0.0	0.0	1.0	0.5
9	12.0	11.0	6.0	4.0	2.5	1.5	0.0	0.0	0.0	0.0	1.0	1.0
10	12.0	9.5	6.5	6.0	2.5	2.5	0.0	0.0	0.0	0.0	2.5	1.0
11	9.5	7.5	6.5	6.5	2.5	2.5	0.0	0.0	0.0	0.0	4.0	2.0
12	8.5	8.0	6.5	6.0	2.5	2.0	0.0	0.0	0.0	0.0	4.0	2.5
13	8.5	8.5	6.0	5.5	2.0	2.0	0.0	0.0	0.0	0.0	4.5	4.0
14	9.0	8.5	5.5	3.5	2.0	2.0	0.0	0.0	0.0	0.0	5.5	4.0
15	8.5	6.5	3.5	2.5	2.0	2.0	0.0	0.0	0.0	0.0	5.5	4.5
16	6.5	6.0	3.0	2.5	2.0	1.5	0.0	0.0	0.0	0.0	4.5	2.5
17	7.0	5.5	4.5	3.0	2.5	1.5	0.0	0.0	0.0	0.0	4.0	2.0
18	8.0	6.5	4.5	4.5	2.5	2.5	0.0	0.0	1.0	0.0	4.0	2.5
19	8.0	7.0	5.0	4.5	2.5	2.5	---	---	1.0	1.0	3.5	1.5
20	8.0	7.5	5.0	4.5	2.5	1.5	---	---	1.5	1.0	2.5	1.5
21	8.5	7.5	5.0	3.0	1.5	1.0	---	---	1.5	1.0	5.0	2.5
22	8.5	7.5	3.0	2.5	1.0	0.5	---	---	1.5	0.0	5.0	2.5
23	8.5	8.0	2.5	1.0	0.5	0.5	0.0	0.0	0.5	0.0	4.5	3.0
24	9.0	8.5	1.0	1.0	0.5	0.5	0.5	0.0	2.5	0.5	4.5	2.5
25	9.0	8.5	1.0	1.0	0.5	0.0	0.5	0.5	3.5	2.0	4.0	2.0
26	9.0	8.5	2.5	1.0	0.5	0.5	0.5	0.0	3.5	2.5	4.5	2.0
27	8.5	8.5	3.5	2.5	0.5	0.0	0.0	0.0	3.5	0.5	5.5	3.5
28	8.5	8.0	3.5	3.0	0.0	0.0	0.0	0.0	0.5	0.0	4.0	3.5
29	8.0	9.0	3.0	3.0	0.0	0.0	0.0	0.0	---	---	3.5	3.5
30	8.0	6.5	4.0	3.0	0.0	0.0	0.0	0.0	---	---	6.0	3.0
31	7.0	5.5	---	---	0.0	0.0	0.0	0.0	---	---	7.0	5.0
MONTH	12.0	5.5	6.5	1.0	5.0	0.0	0.5	0.0	3.5	0.0	7.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	7.0	6.0	11.0	9.0	---	---	19.0	16.0	18.0	14.0	15.0	13.5
2	7.0	4.5	9.0	8.0	10.5	10.5	18.5	13.0	18.5	16.5	16.5	14.0
3	4.5	3.0	11.0	7.0	---	---	18.0	13.5	18.5	15.0	17.0	16.0
4	4.0	3.0	11.5	8.0	---	---	19.0	15.0	17.0	13.0	18.0	16.0
5	6.5	3.5	11.5	10.0	18.0	14.5	19.5	16.0	18.5	14.0	19.5	17.0
6	7.5	4.5	13.0	9.0	19.0	14.0	20.5	15.5	19.0	14.5	19.5	17.0
7	8.5	5.5	13.5	10.0	18.0	15.5	20.5	16.5	20.0	15.5	18.5	16.0
8	9.0	6.0	14.0	10.5	17.5	14.0	20.0	16.5	20.5	16.5	17.5	15.0
9	9.5	6.5	14.5	10.5	---	---	19.5	15.0	20.5	17.5	15.5	12.5
10	9.0	5.0	15.0	11.0	---	---	19.0	15.0	20.0	17.5	15.0	13.5
11	10.0	7.0	14.5	12.0	16.0	13.5	19.0	15.5	18.5	16.0	15.0	13.5
12	10.0	7.5	12.5	9.0	19.0	14.5	18.0	14.0	18.0	14.5	13.5	13.0
13	7.5	6.0	11.5	7.5	18.5	16.0	19.5	16.5	19.5	16.0	15.0	12.5
14	7.5	4.5	13.5	9.0	18.5	14.5	20.5	16.0	19.0	16.5	16.5	13.5
15	9.0	6.0	15.5	11.0	18.0	15.0	19.5	15.5	18.5	15.0	16.0	14.0
16	10.5	7.0	16.5	13.0	18.5	13.5	17.5	14.5	18.5	14.5	14.0	11.5
17	10.5	8.5	15.0	12.0	19.5	15.5	17.5	13.0	19.5	15.5	13.5	12.0
18	11.0	7.5	15.0	13.5	19.5	16.0	17.0	13.5	19.5	16.0	12.5	11.0
19	11.5	9.0	15.5	13.5	20.5	16.5	18.0	14.0	19.0	16.0	11.5	11.0
20	12.0	10.5	14.5	11.5	19.5	17.0	19.0	14.5	20.0	16.5	11.0	11.0
21	12.0	9.0	12.5	10.0	19.0	16.0	19.0	15.5	20.0	16.0	12.0	9.0
22	10.0	7.5	14.5	9.5	17.5	14.0	20.0	17.5	17.5	14.5	12.5	12.0
23	10.0	7.5	14.0	11.0	18.5	14.0	20.0	17.0	15.0	12.0	12.5	11.5
24	9.5	6.0	11.0	10.0	17.5	15.0	19.0	15.5	14.5	11.5	11.5	9.5
25	7.5	6.5	10.5	10.5	16.5	14.0	19.5	16.0	14.0	12.5	11.5	9.5
26	8.5	7.0	10.5	9.5	18.5	12.5	19.5	16.0	14.0	12.5	10.5	10.5
27	8.5	7.5	13.5	8.5	21.0	15.0	16.5	13.5	13.5	12.0	11.5	10.5
28	7.5	7.5	---	---	22.5	17.5	16.5	14.5	15.5	13.0	15.5	11.5
29	7.5	7.5	---	---	22.5	18.5	17.0	13.0	16.5	13.0	15.5	15.0
30	11.0	7.0	---	---	21.5	18.0	17.0	14.5	16.5	13.0	15.0	13.0
31	---	---	---	---	---	---	16.5	15.0	15.0	11.5	---	---
MONTH	12.0	3.0	16.5	7.0	22.5	10.5	20.5	13.0	20.5	11.5	19.5	9.0
YEAR	22.5	0.0										

04126200 LITTLE MANISTEE RIVER NEAR FREESOIL, MICH.

LOCATION.—Lat 44°11'00", long 86°10'00", in NE¼ NE¼ sec.31, T.21 N., R.15 W., Manistee County, temperature recorder at gaging station on right bank, 25 feet upstream from Sixmile Bridge, 5.8 miles north of Freesoil, 7.4 miles upstream from mouth, and 9.0 miles southeast of Manistee.

DRAINAGE AREA.—200 sq mi.

PERIOD OF RECORD.—Water temperatures: October 1956 to September 1971.

EXTREMES, 1970-71:
Water temperatures: Maximum, 22.5°C June 28, 29; minimum, 0.5°C Feb. 12-18.
Period of record:
Water temperatures (1956-71): Maximum, 22.5°C June 28, 29, 1971; minimum, freezing point on many days during winter period.

REMARKS.—Recorder stopped Mar. 15 to Apr. 7, Apr. 9-20, July 21 to Aug. 6; range in temperature, 1.0°C to 6.5°C, 4.5°C to 13.0°C, 12.5°C to 19.5°C, respectively. A summary of periodic specific conductance data for this station is on page 78.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.5	8.5	7.5	6.5	7.0	5.5	2.0	1.5	1.5	1.5	2.5	1.5
2	12.0	10.0	6.5	6.5	7.0	5.5	2.5	2.0	2.0	1.5	1.5	1.0
3	11.0	9.0	7.0	6.5	5.5	5.0	2.5	2.0	1.5	1.5	2.5	1.0
4	9.5	8.5	7.0	6.5	5.0	4.5	2.0	2.0	1.5	1.5	2.5	1.5
5	10.5	8.5	6.5	6.C	4.5	3.0	2.0	2.0	1.5	1.0	3.5	1.5
6	12.5	10.5	6.5	5.5	3.0	2.0	2.0	1.5	1.0	1.0	3.5	3.0
7	13.0	12.0	6.5	5.5	2.5	2.5	1.5	1.5	1.0	1.0	3.0	2.0
8	13.5	12.0	5.5	4.5	3.5	2.5	1.5	1.5	1.0	1.0	2.0	2.0
9	13.5	13.0	7.0	5.5	4.0	3.5	1.5	1.5	1.0	1.0	2.5	1.5
10	13.0	10.0	7.5	7.0	4.0	4.0	1.5	1.5	1.0	1.0	2.5	2.0
11	10.0	8.5	7.5	7.0	4.0	3.0	1.5	1.5	1.0	1.0	3.5	1.5
12	9.5	9.0	8.0	7.5	3.0	2.0	1.5	1.5	1.0	0.5	4.0	2.5
13	10.0	9.5	8.0	7.0	2.0	2.0	1.5	1.5	0.5	0.5	5.0	3.5
14	10.5	9.0	7.5	5.5	2.5	2.0	1.5	1.5	1.0	0.5	6.0	4.5
15	9.0	8.0	5.5	4.5	2.5	2.0	1.5	1.5	1.0	0.5	---	---
16	8.5	7.0	5.0	4.5	2.0	2.0	1.5	1.5	1.0	0.5	---	---
17	8.5	6.5	5.5	4.5	3.0	2.0	1.5	1.5	1.0	0.5	---	---
18	9.0	7.0	6.0	5.5	3.5	3.0	1.5	1.5	1.0	0.5	---	---
19	9.5	7.5	6.5	6.0	4.0	3.5	1.5	1.5	1.0	1.0	---	---
20	9.0	8.5	6.5	6.5	4.0	2.5	1.5	1.5	3.0	1.0	---	---
21	9.0	8.5	6.5	6.0	2.5	1.5	1.5	1.5	3.5	2.5	---	---
22	9.5	8.5	6.0	4.0	1.5	1.5	2.0	1.5	3.0	1.5	---	---
23	9.5	8.5	4.0	2.0	1.5	1.5	2.0	2.0	2.5	1.5	---	---
24	10.5	9.5	2.0	2.0	1.5	1.5	2.5	2.0	2.5	1.5	---	---
25	10.5	9.5	2.0	1.5	1.5	1.5	3.0	2.5	4.0	2.0	---	---
26	10.0	9.0	3.0	2.0	1.5	1.5	3.0	1.0	4.5	3.5	---	---
27	9.5	9.0	4.0	3.0	1.5	1.5	1.0	1.0	4.5	2.5	---	---
28	9.5	9.5	4.0	3.5	1.5	1.5	1.0	1.0	3.0	2.0	---	---
29	9.5	8.0	4.0	3.5	2.0	1.5	1.0	1.0	---	---	---	---
30	9.0	7.5	5.5	4.0	2.0	1.5	1.0	1.0	---	---	---	---
31	8.0	8.0	---	---	1.5	1.5	1.5	1.0	---	---	---	---
MONTH	13.5	6.5	8.0	1.5	7.0	1.5	3.0	1.0	4.5	0.5	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	10.0	9.0	14.5	13.0	19.0	17.0	---	---	16.5	15.5
2	---	---	10.0	8.5	13.5	12.5	19.0	15.5	---	---	18.0	15.5
3	---	---	11.0	7.0	17.0	13.0	19.0	15.5	---	---	18.5	16.5
4	---	---	10.0	8.5	18.0	15.0	19.0	16.0	---	---	18.5	17.0
5	---	---	13.0	9.5	19.0	16.5	19.5	17.0	---	---	19.0	17.0
6	---	---	14.5	11.0	19.5	17.0	20.0	16.0	---	---	19.0	17.5
7	---	---	14.0	11.0	19.5	17.5	19.0	16.5	17.5	14.0	19.0	16.5
8	8.5	5.5	14.5	11.0	19.0	16.0	18.0	16.5	18.0	14.0	17.5	15.5
9	---	---	15.0	11.5	18.0	14.5	18.5	15.5	18.0	15.5	16.5	14.5
10	---	---	15.5	11.5	17.5	14.5	18.0	15.0	17.5	16.0	17.5	15.0
11	---	---	15.0	12.5	17.5	15.5	19.0	15.5	17.5	15.0	16.0	14.5
12	---	---	12.5	9.0	20.0	16.0	18.0	15.0	17.0	14.0	14.5	14.0
13	---	---	12.0	8.0	19.5	17.5	19.5	16.5	18.0	15.0	15.0	13.0
14	---	---	14.0	10.0	19.5	16.5	19.0	15.5	17.5	16.0	16.0	13.5
15	---	---	16.0	12.0	19.0	16.5	18.5	15.5	18.0	15.0	15.5	13.5
16	---	---	17.0	13.5	19.5	16.0	18.5	15.0	17.5	14.5	14.5	12.0
17	---	---	15.5	13.5	19.5	16.5	19.0	15.0	17.5	14.0	14.5	13.0
18	---	---	16.5	14.5	19.0	16.5	15.5	14.0	17.5	14.5	13.0	12.0
19	---	---	16.0	14.0	19.0	16.5	17.0	14.0	16.0	14.5	12.5	12.0
20	---	---	15.0	12.5	18.0	17.0	17.0	13.5	18.0	15.0	13.0	11.5
21	13.0	11.5	15.5	12.0	19.0	16.0	---	---	18.5	16.0	12.5	10.5
22	12.5	10.0	15.5	11.5	19.0	16.0	---	---	18.0	15.0	13.0	11.5
23	11.5	9.0	13.5	13.0	19.5	16.0	---	---	17.0	14.0	12.5	11.0
24	9.5	8.0	13.5	12.5	18.0	16.5	---	---	14.5	13.0	12.0	9.5
25	9.5	7.5	13.0	11.5	19.5	16.5	---	---	15.5	13.0	11.0	9.5
26	10.0	8.0	12.5	11.0	19.5	16.0	---	---	15.0	14.0	11.0	10.5
27	8.5	8.0	14.0	10.5	21.0	17.0	---	---	15.5	13.5	12.5	11.0
28	8.0	7.5	15.5	11.5	22.5	18.5	---	---	16.0	13.0	15.0	12.5
29	8.5	7.0	16.5	12.5	22.5	19.5	---	---	17.0	13.5	15.5	14.0
30	9.5	6.5	17.5	13.5	21.0	19.0	---	---	16.5	14.5	15.0	14.0
31	---	---	16.0	14.5	---	---	---	---	17.5	14.5	---	---
MONTH	---	---	17.5	7.0	22.5	12.5	---	---	18.5	13.0	19.0	9.5
YEAR	22.5	0.5										

04127000 BOARDMAN RIVER NEAR MAYFIELD, MICH.

LOCATION.—Lat 44°38'18", long 85°31'10", in SE¼ NE¼ sec.21, T.26 N., R.10 W., Grand Traverse County, temperature recorder at gaging station on right bank, 25 feet downstream from Brown's Bridge, 300 feet downstream from East Creek, 0.9 mile downstream from Browns Bridge Dam, 1.0 mile northeast of Mayfield, and 9.6 miles southeast of Traverse City.

DRAINAGE AREA.—223 sq mi.

PERIOD OF RECORD.—Water temperatures: June 1961 to September 1971.

EXTREMES, 1970-71:

Water temperatures: Maximum, 20.0°C June 29, 30, July 2, 11; minimum, 0.5°C Feb. 2-18.

Period of record:

Water temperatures (1961-71): Maximum, 23.0°C July 2, 1963; minimum, 0°C Jan. 10-15, 1968, Jan. 26-28, 1970.

REMARKS.—Flow regulated by powerplant 0.9 miles above station. A summary of periodic specific conductance data for this station is on page 78.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	10.0	9.0	8.5	3.0	3.0	2.0	1.5	1.0	1.0	2.0	2.0
2	10.0	10.0	8.5	8.0	3.5	3.0	1.5	1.5	1.0	0.5	2.0	2.0
3	10.0	10.0	8.0	8.0	3.5	3.5	1.5	1.5	0.5	0.5	2.0	2.0
4	10.0	10.0	8.0	8.0	3.5	3.5	1.5	1.5	0.5	0.5	2.0	2.0
5	10.0	9.5	8.0	7.5	3.5	3.5	1.5	1.5	0.5	0.5	2.0	2.0
6	9.5	9.5	7.5	6.5	3.5	2.5	1.5	1.5	0.5	0.5	2.0	2.0
7	10.5	9.5	6.5	6.5	2.5	2.0	1.5	1.5	0.5	0.5	2.0	2.0
8	11.0	10.5	6.5	6.5	2.0	2.0	1.5	1.5	0.5	0.5	2.0	2.0
9	12.0	11.0	6.5	6.5	2.0	2.0	1.5	1.5	0.5	0.5	2.0	2.0
10	12.0	11.0	6.5	6.0	2.0	2.0	1.5	1.5	0.5	0.5	2.0	2.0
11	11.0	11.0	6.0	6.0	2.0	2.0	1.5	1.5	0.5	0.5	2.0	2.0
12	11.0	11.0	6.0	6.0	2.0	2.0	1.5	1.5	0.5	0.5	2.0	2.0
13	11.0	11.0	6.0	6.0	2.5	2.0	1.5	1.5	0.5	0.5	2.0	2.0
14	11.0	10.5	6.0	5.5	2.5	2.5	1.5	1.5	0.5	0.5	2.0	2.0
15	10.5	10.0	5.5	5.0	2.5	2.5	1.5	1.5	0.5	0.5	2.0	2.0
16	10.0	9.5	5.0	5.0	2.5	2.5	1.5	1.5	0.5	0.5	2.0	2.0
17	9.5	8.5	5.0	5.0	2.5	2.5	1.5	1.5	0.5	0.5	2.0	2.0
18	8.5	9.5	5.0	5.0	2.5	2.5	1.5	1.5	1.0	0.5	2.0	2.0
19	8.5	8.5	5.0	5.0	2.5	2.5	1.5	1.5	1.0	1.0	2.0	2.0
20	8.5	8.5	5.5	5.0	2.5	2.0	1.5	1.5	1.0	1.0	2.0	2.0
21	8.5	8.5	5.5	5.0	2.0	2.0	1.5	1.5	1.5	1.0	2.5	2.0
22	8.5	8.5	5.5	4.5	2.0	2.0	1.5	1.5	1.5	1.5	2.5	2.5
23	8.5	8.5	4.5	4.0	2.0	2.0	1.5	1.5	2.0	1.5	2.5	2.5
24	8.5	8.5	4.0	3.0	2.0	2.0	1.5	1.5	2.0	2.0	2.5	2.5
25	9.0	8.5	3.0	2.5	2.0	2.0	1.5	1.5	2.0	2.0	2.5	2.5
26	9.0	9.0	2.5	2.0	2.0	2.0	1.5	1.5	2.0	2.0	2.5	2.5
27	9.0	9.0	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0	2.5	2.5
28	9.0	9.0	2.5	2.0	2.0	2.0	1.5	1.5	2.0	2.0	2.5	2.5
29	9.0	9.0	3.0	2.5	2.0	2.0	1.5	1.5	---	---	2.5	2.5
30	9.0	9.0	3.0	3.0	2.0	2.0	1.5	1.5	---	---	2.5	2.5
31	9.0	9.0	---	---	2.0	2.0	1.5	1.0	---	---	3.0	2.5
MONTH	12.0	8.5	9.0	2.0	3.5	2.0	2.0	1.0	2.0	0.5	3.0	2.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	3.0	7.5	7.0	14.5	13.5	19.5	19.5	15.5	15.0	16.5	16.0
2	3.0	3.0	8.0	7.5	13.5	13.0	20.0	18.5	16.0	15.0	16.0	15.5
3	3.0	3.0	9.5	8.0	13.0	11.5	19.0	18.0	16.0	16.0	16.5	16.0
4	3.0	3.0	9.0	7.5	14.0	12.0	18.0	17.5	16.5	15.5	17.0	16.0
5	3.0	2.5	10.0	7.5	17.0	14.0	18.5	17.5	16.5	16.0	17.5	17.0
6	2.5	2.5	11.5	9.5	16.0	14.5	18.5	17.5	16.0	15.5	17.5	17.5
7	2.5	2.5	11.5	10.5	17.0	15.0	19.0	17.5	16.5	15.5	17.5	17.5
8	3.0	2.5	12.0	11.0	17.5	17.0	19.0	17.5	16.5	16.0	17.5	17.0
9	3.0	3.0	12.5	11.5	17.5	16.5	19.0	18.0	16.5	16.0	17.0	17.0
10	3.5	3.0	12.5	12.0	16.5	16.0	19.0	18.0	17.0	16.0	17.0	15.5
11	4.0	3.5	12.5	11.0	16.0	15.0	20.0	18.0	17.0	17.0	16.5	16.5
12	4.0	4.0	12.5	11.0	16.5	14.5	18.0	17.0	17.0	15.5	16.5	16.0
13	4.5	4.0	11.0	10.5	16.5	16.5	17.0	16.0	18.0	16.0	16.0	15.5
14	4.5	4.5	11.5	10.5	17.5	16.5	18.5	17.0	18.0	17.5	15.5	15.0
15	4.5	4.5	10.5	9.5	17.0	17.0	18.0	17.5	18.5	17.0	15.5	15.0
16	5.5	4.5	14.0	10.5	17.0	16.5	17.5	16.5	17.5	17.0	15.5	15.0
17	7.0	5.0	13.5	13.0	17.0	16.0	17.0	16.5	17.0	16.5	15.0	15.0
18	8.5	7.0	14.0	13.0	17.0	16.5	17.0	16.5	16.5	16.5	15.0	14.5
19	9.0	8.0	14.0	13.0	18.0	17.0	17.0	16.5	16.5	16.0	14.5	14.5
20	10.5	9.0	13.5	13.0	18.0	17.0	16.5	16.5	17.0	16.5	14.5	13.0
21	10.5	10.0	14.0	13.0	18.5	17.5	16.5	15.5	17.5	17.0	13.0	12.5
22	10.0	9.0	14.5	13.0	18.0	16.5	17.5	16.0	17.5	17.0	13.0	12.5
23	9.5	8.5	13.5	13.5	17.5	16.5	17.5	17.5	18.0	17.5	13.0	12.0
24	9.0	9.0	13.5	12.0	18.0	17.0	19.0	17.5	17.5	17.0	12.0	12.[illegible]
25	9.0	7.5	12.0	11.0	18.0	17.5	18.5	16.5	17.0	16.0	12.0	12.0
26	7.5	7.5	11.5	11.0	18.5	17.0	17.0	17.0	16.0	14.0	12.0	12.0
27	7.5	7.5	12.0	11.0	17.5	16.0	17.0	16.5	16.0	15.5	12.0	12.0
28	7.5	7.0	13.0	12.0	18.0	17.5	16.5	16.0	16.0	15.0	12.5	11.5
29	7.0	7.0	12.5	12.0	20.0	18.0	16.0	16.0	15.5	14.5	13.5	12.5
30	7.0	7.0	14.5	12.0	20.0	19.0	16.5	16.0	16.5	15.5	13.5	13.5
31	---	---	14.5	14.0	---	---	16.5	15.0	16.5	16.0	---	---
MONTH	10.5	2.5	14.5	7.0	20.0	11.5	20.0	15.0	18.5	14.0	17.5	11.5
YEAR	20.0	0.5										

04127800 JORDAN RIVER NEAR EAST JORDAN, MICH.

LOCATION.—Lat 45°06'09", long 85°05'53", in NW¼ NW¼ sec.7, T.31 N., R. 6 W., Antrim County, temperature recorder at gaging station on right bank, 600 feet downstream from Webster Bridge, 4.2 miles south of East Jordan, and 4.5 miles upstream from mouth.
DRAINAGE AREA.—67.6 sq mi.
PERIOD OF RECORD.—Water temperatures: October 1966 to September 1971.
EXTREMES, 1970-71:
Water temperatures: Maximum, 19.5°C June 28, 29; minimum, freezing point on several days during December.
Period of record:
Water temperatures (1966-71): Maximum, 19.5°C June 28, 29, 1971; minimum, freezing point on many days during winter period.
REMARKS.—A summary of periodic specific conductance data for this station is on page 98.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	8.5	8.0	7.0	4.0	2.5	1.0	1.0	0.5	0.5	1.0	1.0
2	10.0	9.0	7.0	6.5	3.5	3.0	1.5	1.0	0.5	0.5	1.0	0.5
3	10.0	9.0	6.5	6.5	3.0	0.5	1.5	1.5	0.5	0.5	0.5	0.5
4	9.0	9.0	6.5	6.5	0.5	0.0	1.5	1.5	0.5	0.5	0.5	0.5
5	9.5	8.5	6.5	6.5	0.5	0.0	1.5	1.5	0.5	0.5	1.5	0.5
6	11.5	9.5	6.5	6.5	0.5	0.0	1.5	1.0	0.5	0.5	2.0	1.5
7	12.0	11.5	6.5	6.5	0.5	0.0	1.0	1.0	0.5	0.5	2.0	1.0
8	12.0	12.0	6.5	5.0	1.5	0.5	1.0	1.0	0.5	0.5	1.0	0.5
9	12.5	12.0	6.5	5.0	2.5	1.5	1.0	1.0	0.5	0.5	0.5	0.5
10	12.5	10.5	7.0	6.5	3.0	2.5	1.0	1.0	0.5	0.5	1.0	0.5
11	10.5	9.5	7.0	7.0	3.0	3.0	1.0	1.0	0.5	0.5	2.0	1.0
12	9.0	8.5	7.0	7.0	3.0	2.5	1.0	0.5	0.5	0.5	2.5	2.0
13	9.5	9.0	7.0	6.5	2.5	2.0	0.5	0.5	0.5	0.5	3.5	2.5
14	9.5	9.5	6.5	4.5	2.0	2.0	0.5	0.5	0.5	0.5	4.0	3.5
15	9.5	8.0	4.5	3.0	2.0	2.0	0.5	0.5	0.5	0.5	4.0	3.5
16	8.0	7.5	3.0	3.0	2.0	2.0	0.5	0.5	0.5	0.5	3.5	3.0
17	7.5	6.5	4.0	3.0	2.5	2.0	0.5	0.5	0.5	0.5	3.0	2.5
18	7.5	6.5	4.0	4.0	2.5	2.5	0.5	0.5	1.5	0.5	2.5	2.5
19	7.5	6.5	4.5	4.0	2.5	2.5	0.5	0.5	1.5	1.5	2.5	2.5
20	7.5	7.0	5.0	4.5	2.5	2.0	0.5	0.5	1.5	1.5	2.5	2.5
21	8.5	7.5	5.0	4.5	2.0	1.5	1.0	0.5	1.5	1.5	3.0	2.5
22	8.5	7.5	4.5	3.5	1.5	1.5	1.0	1.0	1.5	0.5	3.0	2.5
23	8.5	7.5	3.5	1.0	1.5	1.5	1.0	1.0	0.5	0.5	3.5	3.0
24	9.0	8.5	1.0	1.0	1.5	1.5	1.0	1.0	1.0	0.5	3.5	2.5
25	9.0	9.0	1.0	1.0	1.5	1.5	1.0	1.0	1.5	1.0	2.5	1.5
26	9.0	8.5	2.0	1.0	1.5	1.5	1.0	0.5	2.5	1.5	2.5	1.5
27	9.0	9.0	2.0	2.0	1.5	1.0	0.5	0.5	2.5	1.5	2.5	2.5
28	9.0	9.0	2.0	2.0	1.0	1.0	0.5	0.5	1.5	1.0	2.5	2.0
29	9.0	9.0	2.0	2.0	1.0	1.0	0.5	0.5	---	---	2.0	2.0
30	9.0	8.0	2.5	2.0	1.0	1.0	0.5	0.5	---	---	3.0	2.0
31	9.0	8.0	---	---	1.0	1.0	0.5	0.5	---	---	4.0	3.0
MONTH	12.5	6.5	8.0	1.0	4.0	0.0	1.5	0.5	2.5	0.5	4.0	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	3.5	10.0	9.0	12.0	11.0	17.5	15.0	14.5	12.5	13.0	12.5
2	3.5	3.0	9.0	8.5	11.0	10.5	15.5	13.0	14.5	14.0	14.5	13.0
3	3.0	2.0	9.5	7.5	15.0	11.0	16.0	13.5	14.5	13.0	15.5	14.0
4	2.0	2.0	9.5	8.0	16.5	14.0	16.0	15.0	13.0	11.0	16.0	14.5
5	3.0	2.0	10.0	9.0	16.5	14.5	14.5	14.5	13.5	11.5	16.0	15.0
6	4.0	2.5	11.0	9.0	16.5	14.0	17.0	15.0	14.0	12.5	16.0	15.0
7	4.5	3.0	11.5	9.5	16.5	15.5	17.0	15.5	15.0	13.0	16.0	14.5
8	4.5	3.5	12.0	10.0	16.0	15.0	17.0	15.5	15.5	14.0	15.0	14.0
9	4.5	3.5	12.0	10.0	15.0	12.0	16.0	14.0	15.5	14.5	14.0	12.5
10	4.5	3.0	13.0	10.5	14.5	11.5	16.0	14.0	15.5	14.5	13.5	13.0
11	6.0	4.0	13.0	12.0	14.5	13.5	16.0	14.0	15.0	14.0	13.5	13.0
12	6.0	5.0	12.0	9.0	16.5	14.0	16.0	13.0	14.0	13.0	13.0	12.5
13	5.0	4.5	9.5	7.0	16.5	15.5	16.5	14.5	15.0	13.5	12.5	12.5
14	5.0	3.5	11.5	8.5	16.0	13.5	16.5	15.0	15.0	14.0	13.0	12.0
15	6.5	5.0	14.0	10.5	16.5	15.0	16.0	14.0	14.5	13.0	13.0	12.5
16	9.0	6.0	14.5	13.0	16.5	14.0	15.5	14.0	14.5	12.0	13.0	11.0
17	8.0	7.5	14.5	11.5	16.5	15.0	14.0	12.0	14.5	12.5	11.5	11.0
18	9.0	7.0	13.0	13.0	16.5	15.5	14.0	12.5	14.5	13.0	11.0	10.0
19	10.0	9.5	14.0	13.0	16.5	15.5	15.0	12.5	14.5	13.5	10.0	10.0
20	10.0	9.5	14.0	12.0	16.5	15.5	15.0	13.0	15.0	14.0	10.0	10.0
21	10.0	8.5	12.0	10.5	16.5	15.0	15.5	14.0	15.5	14.0	10.0	9.0
22	8.5	7.5	12.0	9.5	16.5	13.5	15.5	15.0	15.5	14.0	10.5	10.0
23	8.5	7.0	12.0	11.0	16.0	14.5	15.0	14.5	14.0	12.0	10.5	10.5
24	8.5	6.0	11.0	11.0	16.0	14.5	15.5	14.0	13.0	11.0	10.5	9.0
25	6.0	6.0	11.0	11.0	15.5	13.5	16.0	14.0	12.0	11.0	9.5	9.0
26	6.5	6.0	11.0	10.0	15.5	13.0	16.0	14.5	12.0	12.0	9.0	9.0
27	6.5	6.5	12.0	9.0	18.0	14.5	14.5	12.0	12.5	12.0	10.0	9.0
28	7.0	6.5	13.0	10.0	19.5	17.0	13.5	12.0	13.5	12.0	13.5	10.0
29	7.5	7.0	14.0	11.0	19.5	17.5	14.0	12.5	14.0	12.5	13.5	13.5
30	10.0	7.0	14.0	12.5	19.0	17.5	14.0	12.5	14.0	12.5	13.5	12.0
31	---	---	14.0	12.0	---	---	14.0	12.5	13.0	11.5	---	---
MONTH	10.0	2.0	14.5	7.0	19.5	10.5	17.5	12.0	15.5	11.0	16.0	9.0
YEAR	19.5	0.0										

STREAMS TRIBUTARY TO LAKE HURON

04128000 STURGEON RIVER NEAR WOLVERINE, MICH.

LOCATION.—Lat 45°17'56", long 84°36'40", in SE¼ NE¼ sec.36, T.34 N., R.3 W., Cheboygan County, temperature recorder at gaging station on left bank, 1.8 miles north of Wolverine, 2.8 miles downstream from West Branch, and 9 miles upstream from mouth.

DRAINAGE AREA.—170 sq mi, approximately.

PERIOD OF RECORD.—Water temperatures: October 1958 to September 1971.

EXTREMES, 1970-71:
Water temperatures: Maximum, 21.5°C June 28; minimum, freezing point on many days during January to March.
Period of record:
Water temperatures (1958-71): Maximum,24.0°C June 30, 1964; minimum, freezing point on many days during winter period.

REMARKS.—Intermittent ice cover during winter months. Intermittent regulation at low flows from ponds, 2.4 miles upstream. Recorder stopped Jan. 12-24, Mar. 7 to Apr. 10; range in temperature, 0 to 0.5°C, 0 to 4.5°C respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970-TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	8.0	7.5	7.0	3.5	2.0	1.5	1.5	0.5	0.5	0.0	0.0
2	10.0	9.0	7.0	6.5	3.5	2.5	1.5	1.5	0.5	0.5	0.0	0.0
3	10.0	9.0	6.5	6.5	2.5	1.5	1.5	1.0	0.5	0.5	0.0	0.0
4	9.0	8.5	6.5	6.5	1.5	1.5	1.0	0.5	0.5	0.5	0.0	0.0
5	9.0	8.0	6.5	6.5	1.5	1.5	0.5	0.5	0.5	0.5	0.0	0.0
6	11.5	9.0	6.5	6.5	1.5	1.5	0.5	0.5	0.5	0.0	0.0	0.0
7	12.0	11.5	6.5	6.0	1.5	1.5	0.5	0.5	0.0	0.0	---	---
8	12.5	11.5	6.0	5.0	1.5	1.5	0.5	0.5	0.0	0.0	---	---
9	13.0	12.0	5.5	5.0	1.5	1.5	0.5	0.5	0.0	0.0	---	---
10	13.0	11.0	6.5	5.5	1.5	1.5	0.5	0.5	0.0	0.0	---	---
11	11.0	9.0	6.5	6.5	1.5	1.5	0.5	0.5	0.0	0.0	---	---
12	9.5	9.0	6.5	6.5	1.5	1.5	---	---	0.0	0.0	---	---
13	9.5	9.0	6.5	5.5	1.5	1.5	---	---	0.0	0.0	---	---
14	9.5	9.0	5.5	4.5	1.5	1.5	---	---	0.0	0.0	---	---
15	9.0	8.5	4.5	3.5	1.5	1.5	---	---	0.0	0.0	---	---
16	8.5	8.0	3.5	3.5	1.5	1.5	---	---	0.0	0.0	---	---
17	8.0	7.5	3.5	3.5	1.5	1.5	---	---	0.0	0.0	---	---
18	8.5	7.5	3.5	3.5	1.5	1.5	---	---	0.0	0.0	---	---
19	8.5	7.5	4.5	3.5	1.5	1.5	---	---	0.0	0.0	---	---
20	8.0	7.5	4.5	4.5	1.5	1.5	---	---	0.0	0.0	---	---
21	9.0	8.0	4.5	4.0	1.5	1.5	---	---	0.0	0.0	---	---
22	9.0	8.0	4.0	3.5	1.5	1.5	---	---	0.0	0.0	---	---
23	9.0	8.0	3.5	2.5	1.5	1.5	---	---	0.0	0.0	---	---
24	9.5	9.0	2.5	2.5	1.5	1.5	---	---	0.0	0.0	---	---
25	10.0	9.5	2.5	2.0	1.5	1.5	0.0	0.0	0.0	0.0	---	---
26	10.0	9.5	2.0	2.0	1.5	1.5	0.5	0.0	0.0	0.0	---	---
27	9.5	9.0	2.0	2.0	1.5	1.5	0.5	0.5	0.0	0.0	---	---
28	9.5	9.0	2.0	2.0	1.5	1.5	0.5	0.5	0.0	0.0	---	---
29	9.0	9.0	2.0	2.0	1.5	1.5	0.5	0.5	---	---	---	---
30	9.0	7.5	2.0	2.0	1.5	1.5	0.5	0.5	---	---	---	---
31	7.5	7.5	---	---	1.5	1.5	0.5	0.5	---	---	---	---
MONTH	13.0	7.5	7.5	2.0	3.5	1.5	---	---	0.5	0.0	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	9.5	7.5	12.0	10.0	19.0	16.0	16.0	13.5	14.5	13.0
2	---	---	9.0	7.0	12.0	11.0	17.5	14.0	16.5	15.0	16.0	13.5
3	---	---	9.5	6.5	15.5	11.0	17.5	14.5	16.5	14.5	17.5	15.0
4	---	---	10.0	7.0	17.5	13.5	17.5	15.0	15.0	13.0	18.0	16.0
5	---	---	10.5	8.5	17.5	14.5	19.0	16.0	15.5	13.5	18.0	16.5
6	---	---	11.5	8.0	17.5	13.5	19.0	16.0	16.5	13.5	17.5	16.5
7	---	---	12.0	9.5	17.0	15.5	19.0	16.5	17.5	14.0	17.5	16.0
8	---	---	12.5	9.0	16.5	14.5	19.0	16.5	18.0	15.0	16.5	15.0
9	---	---	13.0	9.5	16.0	13.5	18.0	15.0	18.0	16.0	15.5	13.5
10	---	---	14.0	10.0	15.5	13.0	17.5	15.0	17.5	16.5	14.5	13.5
11	4.0	4.0	13.5	11.0	15.5	13.5	18.0	15.0	17.0	15.5	14.5	14.0
12	4.0	3.5	12.0	9.0	18.0	14.5	17.0	15.0	16.0	14.0	14.0	13.5
13	4.0	3.0	11.5	8.0	18.0	16.0	18.0	16.0	17.0	15.0	14.0	13.0
14	4.5	3.0	12.5	8.5	17.5	14.5	18.5	15.5	17.0	15.0	15.0	13.0
15	5.5	4.0	14.5	10.0	18.0	15.0	18.0	15.0	16.0	14.0	15.0	14.0
16	7.0	4.5	15.0	12.5	18.0	15.0	17.5	15.0	16.0	13.5	14.5	13.0
17	6.5	5.5	14.5	11.5	18.5	15.0	16.5	13.5	16.5	14.0	13.5	13.0
18	7.0	4.5	14.0	12.5	19.0	16.0	16.0	14.0	16.5	14.0	13.0	11.5
19	8.5	5.0	14.5	12.5	19.0	16.0	17.0	14.0	16.5	15.0	11.5	11.0
20	9.0	7.0	14.0	12.0	19.0	17.0	17.5	14.0	17.0	15.0	11.0	11.0
21	8.5	6.5	12.0	11.0	18.5	16.0	17.5	14.5	17.5	15.5	11.0	10.5
22	8.0	6.0	13.5	10.0	17.5	15.0	17.5	16.5	17.5	15.5	11.5	11.0
23	8.0	6.0	13.0	11.0	17.5	15.0	16.5	16.0	16.0	13.5	11.5	11.5
24	7.0	5.0	11.0	10.5	17.0	15.0	17.0	16.0	14.5	13.0	11.5	10.0
25	6.0	5.0	10.5	10.5	16.5	14.0	18.0	16.0	14.0	13.0	10.0	9.5
26	6.5	5.0	10.5	9.5	16.5	13.0	18.0	16.0	13.5	13.5	10.0	10.0
27	6.5	5.0	12.0	9.0	19.5	14.5	16.0	13.5	14.0	13.5	11.0	10.0
28	6.0	5.5	13.5	10.0	21.5	17.0	15.5	14.0	15.5	13.5	13.0	10.5
29	6.0	5.5	14.5	10.5	21.0	18.5	15.5	13.5	16.0	13.5	13.5	13.0
30	9.0	6.0	14.5	12.0	20.0	18.0	15.5	13.5	15.5	14.0	13.5	13.0
31	---	---	13.5	11.0	---	---	15.5	14.0	14.5	13.0	---	---
MONTH	---	---	15.0	6.5	21.5	10.0	19.0	13.5	18.0	13.0	18.0	9.5
YEAR	21.5	0.0										

04132300 HUNT CREEK NEAR LEWISTON, MICH.

LOCATION.--Lat 44°51'55", long 84°09'00", in SW¼ NW¼ sec. 36, T.29 N., R.2 E., Montmorency County, 0.5 mile upstream from former low-flow partial record station, 0.5 mile northeast of Hunt Creek State Fisheries Research Station, 1.5 miles south and 8 miles east of Lewiston.

DRAINAGE AREA.--11 sq mi, approximately.

PERIOD OF RECORD.--Sediment records: October 1970 to September 1971.

REMARKS.--Data collected and analysed by U.S. Department of Agriculture, North Central Forest Experiment Station, Cadillac, Michigan, in cooperation with the Michigan Department of Natural Resources, Hunt Creek Fisheries Research Station. Daily water discharge data are on file at the North Central Forest Experiment Station.

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	TOTAL SEDI-MENT LOAD (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	TOTAL FILT-RABLE RESIDUE (MG/L)
OCT.						
01...	1500	16	22	.95	55	206
08...	1530	17	9	.41	22	212
15...	1645	19	7	.36	--	210
22...	1425	19	21	1.1	28	211
29...	1730	25	31	2.1	32	204
NOV.						
05...	1630	20	13	.70	46	207
09...	1345	17	6	.28	17	200
25...	1400	18	24	1.2	45	191
DEC.						
03...	1430	21	11	.62	0	199
10...	1425	18	20	.97	30	200
17...	1405	17	13	.60	0	207
24...	1030	17	10	.46	40	208
31...	1000	17	6	.28	0	203
JAN.						
07...	1520	19	39	2.0	23	200
14...	1330	17	15	.69	--	203
FEB.						
11...	1335	16	7	.30	57	209
18...	1130	16	9	.39	--	206
25...	1410	18	12	.58	--	205
MAR.						
04...	1410	17	8	.37	--	201
11...	1600	16	20	.86	--	203
15...	1100	29	28	2.2	42	190
15...	1600	32	49	4.2	--	183
18...	1330	19	17	.87	--	196
25...	1000	16	25	1.1	--	204
APR.						
01...	0905	18	19	.92	--	202
11...	1100	24	37	2.4	--	197
12...	1355	35	42	4.0	--	185
13...	0925	38	63	6.5	11	178
13...	1455	38	26	2.7	--	178
13...	1945	36	44	4.3	13	170
14...	0800	33	29	2.6	6	177
14...	1545	32	33	2.9	7	179
15...	0930	28	31	2.3	--	187
23...	1435	29	32	2.5	6	188
JUNE						
08...	1000	41	207	23	2	192
08...	1410	38	139	14	--	195
08...	1705	36	179	17	--	196
09...	1030	30	37	3.0	--	202
10...	0935	24	60	3.9	13	204
JULY						
08...	1205	20	5	.27	--	207
21...	1325	17	11	.50	--	201
22...	0900	20	14	.76	--	204
22...	2020	35	55	5.2	--	177
23...	0830	38	64	6.6	--	196
23...	1030	36	46	4.5	13	196
23...	1550	31	55	4.6	--	200
29...	0950	18	9	.44	--	210
AUG.						
05...	0940	17	17	.78	--	205
19...	1000	17	7	.32	--	206
26...	0955	35	106	10	--	208
26...	1540	29	15	1.2	--	209
SEP.						
01...	1100	18	12	.58	--	207
08...	1315	17	4	.18	--	202
16...	0810	16	12	.52	58	213
23...	0935	16	18	.78	--	205

04135500 AU SABLE RIVER AT GRAYLING, MICH.

LOCATION.—Lat 44°39'35", long 84°42'45", in SE¼ SE¼ sec.7, T.26 N., R.3 W., Crawford County, temperature recorder at gaging station on right bank, 65 feet upstream from bridge on Interstate Highway 75 (Business Loop) at Grayling, 0.7 mile upstream from East Branch, and 114 miles upstream from mouth.

DRAINAGE AREA.—110 sq mi.

PERIOD OF RECORD.—Water temperatures: March 1953 to September 1971.

EXTREMES, 1970-71:

Water temperatures: Maximum, 26.0°C June 29, 30; minimum freezing point on many days during January to March.

Period of record:

Water temperatures (1953-71): Maximum, 28°C July 1, 2, 1963; minimum, freezing point on many days during winter period.

REMARKS.—Recorder stopped Nov. 2-6, range in temperature, 5.5°C to 6.0°C; June 17, pen not marking.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.5	8.5	6.5	6.0	4.5	3.0	1.0	1.0	0.0	0.0	0.0	0.0
2	11.5	10.0	---	---	4.5	4.0	1.0	1.0	0.0	0.0	0.0	0.0
3	11.5	10.0	---	---	4.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0
4	10.0	9.0	---	---	2.0	1.5	1.0	1.0	0.0	0.0	0.0	0.0
5	11.0	8.5	---	---	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
6	13.5	10.5	---	---	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
7	14.5	13.0	6.0	5.5	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
8	15.5	13.5	5.5	4.5	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
9	15.5	14.5	5.0	4.0	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
10	15.0	12.5	6.5	5.0	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
11	12.5	10.5	6.5	6.5	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0
12	11.5	10.5	6.5	6.5	1.5	1.5	1.0	0.5	0.0	0.0	0.0	0.0
13	10.5	10.5	6.5	6.0	1.5	1.5	0.5	0.5	0.0	0.0	0.0	0.0
14	10.5	10.5	6.0	3.5	1.5	1.5	0.5	0.5	0.0	0.0	1.0	0.0
15	10.5	9.0	3.5	2.0	1.5	1.5	0.5	0.5	0.0	0.0	1.5	1.0
16	9.0	7.5	2.0	2.0	1.5	1.5	1.0	0.5	0.0	0.0	2.5	1.0
17	8.0	6.5	3.0	2.0	1.5	1.5	1.0	1.0	0.0	0.0	3.0	1.5
18	8.5	7.0	3.5	3.0	1.5	1.5	1.0	1.0	0.0	0.0	3.0	1.5
19	8.0	7.5	5.0	3.5	2.0	1.5	1.0	1.0	0.0	0.0	2.5	1.0
20	8.0	7.5	5.0	4.5	2.0	1.5	1.0	0.5	0.0	0.0	1.5	1.0
21	8.0	7.5	5.0	3.5	1.5	1.5	0.5	0.5	0.0	0.0	3.0	1.0
22	8.0	8.0	3.5	2.0	1.5	1.5	0.5	0.5	0.0	0.0	3.0	1.5
23	8.0	7.5	2.0	1.5	1.5	1.5	0.5	0.5	0.0	0.0	3.5	2.0
24	8.0	7.5	1.5	1.5	1.5	1.5	0.5	0.0	0.0	0.0	3.5	1.5
25	8.0	7.5	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	3.0	1.5
26	8.0	7.5	1.5	1.5	1.5	1.0	0.0	0.0	0.0	0.0	3.0	1.5
27	7.5	7.5	2.0	1.5	1.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0
28	7.5	7.5	2.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0
29	7.5	7.5	2.5	2.0	1.0	1.0	0.0	0.0	---	---	2.0	2.0
30	7.5	6.5	3.0	2.5	1.0	1.0	0.0	0.0	---	---	4.5	1.5
31	6.5	6.5	---	---	1.0	1.0	0.0	0.0	---	---	6.0	3.0
MONTH	15.5	6.5	6.5	1.5	4.5	1.0	1.0	0.0	0.0	0.0	6.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	4.5	6.5	6.5	13.5	11.5	24.0	21.0	19.0	16.5	19.0	16.5
2	5.5	4.0	6.5	6.5	12.0	11.5	21.0	18.5	19.5	18.0	20.5	17.0
3	4.0	2.0	7.0	6.5	17.5	11.5	21.5	18.5	19.5	18.0	21.5	19.5
4	2.5	1.0	7.0	6.5	20.5	15.5	21.5	19.5	19.0	16.5	22.5	20.5
5	5.0	1.5	7.5	7.0	20.5	17.5	22.0	20.0	20.0	17.0	23.0	21.0
6	6.5	2.0	8.0	6.5	21.0	18.0	22.5	20.0	20.5	17.5	23.0	21.0
7	7.0	3.5	8.5	4.5	21.0	19.0	23.0	20.5	22.0	19.0	22.5	20.5
8	7.0	4.5	10.0	6.0	21.0	18.0	23.0	20.5	22.5	20.0	22.5	20.0
9	7.0	5.5	10.5	6.5	19.5	16.0	22.0	20.0	22.5	21.0	21.0	17.5
10	5.5	5.0	11.0	7.0	19.0	15.5	22.0	19.5	22.5	21.5	19.5	17.5
11	6.0	5.0	12.0	8.5	19.0	16.0	22.0	19.5	22.0	19.5	19.0	17.0
12	6.0	6.0	10.0	7.0	21.5	17.5	22.0	19.0	20.0	18.0	17.0	16.5
13	6.0	5.0	7.5	5.0	21.5	19.0	21.0	19.5	22.0	18.0	18.0	15.5
14	5.0	4.5	10.0	5.5	21.0	18.5	21.5	19.0	21.0	20.0	19.5	16.5
15	5.0	4.5	13.0	8.5	21.0	18.0	21.5	19.0	20.5	18.0	19.5	17.0
16	5.5	5.0	14.0	11.0	20.5	17.0	20.5	18.5	21.0	17.5	18.0	15.0
17	5.5	5.5	14.5	11.5	---	---	20.0	17.0	21.5	18.5	17.0	15.5
18	6.0	5.5	15.5	13.5	20.5	17.5	20.0	17.5	21.5	19.5	16.0	13.5
19	7.0	6.0	16.5	16.0	21.5	19.0	19.0	17.5	21.5	19.5	14.5	13.5
20	7.5	7.0	17.5	13.5	22.0	20.0	21.0	17.5	22.5	20.0	13.5	13.0
21	7.5	7.5	13.5	12.5	21.0	19.0	21.0	19.0	23.0	20.5	14.0	11.0
22	7.5	7.5	16.5	11.5	20.5	18.0	22.0	20.0	23.0	20.5	14.5	13.0
23	7.5	7.0	16.5	13.0	20.0	18.0	22.0	20.5	20.5	17.0	14.5	13.5
24	7.0	6.5	13.0	11.5	20.0	18.5	22.0	19.5	19.5	16.0	13.5	11.5
25	6.5	6.0	11.5	11.0	19.5	17.5	22.0	20.0	18.0	16.0	13.5	11.0
26	6.5	6.0	11.0	9.0	20.0	16.5	22.0	19.5	18.0	16.5	12.0	11.5
27	6.0	6.0	9.5	9.0	23.0	18.5	19.5	17.5	17.0	15.5	12.5	11.5
28	6.0	6.0	16.0	9.0	25.0	21.5	18.5	17.0	19.5	16.5	17.5	12.5
29	6.0	6.0	17.5	12.0	26.0	23.0	18.0	16.0	21.0	17.0	18.0	17.0
30	6.5	6.0	17.5	14.0	26.0	23.5	18.0	16.5	21.0	18.0	18.0	16.0
31	---	---	17.5	13.5	---	---	18.0	17.0	19.0	16.0	---	---
MONTH	7.5	1.0	17.5	4.5	26.0	11.5	24.0	16.0	23.0	15.5	23.0	11.0
YEAR	26.0	0.0										

04135700 SOUTH BRANCH AU SABLE RIVER NEAR LUZERNE, MICH.

LOCATION.—Lat 44°36'53", long 84°27'20", in SE¼ SE¼ sec.29, T.26 N., R.1 W., Crawford County, temperature recorder at gaging station on right bank 10 ft upstream from Smith Bridge, 400 ft downstream from highway bridge on State Highway 72, 4.6 miles upstream from mouth, 9.1 miles west of Luzerne.

DRAINAGE AREA.—401 sq mi.

PERIOD OF RECORD.—Water temperatures: November 1966 to September 1971.

EXTREMES, 1970-71:
Water temperatures: Maximum, 23.0°C June 29; minimum, freezing point on many days during January to March.
Period of record:
Water temperatures (1966-71): Maximum, 24.0°C July 16, 1968; minimum, freezing point on many days during winter period.

REMARKS.—Intermittent ice cover during the winter months. Recorder stopped Oct. 27-30, Feb. 20-25, Feb. 28 to Mar. 5, Mar. 8-15; range in temperature, 8.0°C to 9.0°C, 0.5°C to 2.0°C 0 to 1.5°C, 0.5°C to 3.0°C, respectively.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	7.0	7.5	7.0	4.0	3.5	1.0	1.0	0.0	0.0	---	---
2	10.0	8.5	7.0	6.0	4.0	3.5	1.0	1.0	0.0	0.0	---	---
3	10.0	9.0	6.5	6.0	3.5	2.5	1.0	1.0	0.5	0.0	---	---
4	9.0	7.5	6.5	6.0	2.5	2.0	1.5	1.0	0.0	0.0	---	---
5	9.5	7.5	6.0	6.0	2.5	2.0	2.0	1.5	0.0	0.0	---	---
6	11.5	9.0	6.5	6.0	2.0	1.5	2.0	1.5	0.0	0.0	1.5	1.0
7	12.0	11.0	6.5	6.0	2.0	2.0	1.5	1.5	0.0	0.0	1.0	0.5
8	12.0	11.0	6.0	5.0	2.0	2.0	1.5	1.5	0.0	0.0	---	---
9	12.5	12.0	6.0	5.0	2.5	2.0	1.5	1.0	0.0	0.0	---	---
10	12.5	11.0	6.5	6.0	2.5	2.5	1.0	1.0	0.0	0.0	---	---
11	11.0	9.0	7.0	6.5	2.5	2.0	1.0	1.0	0.0	0.0	---	---
12	9.5	9.0	7.0	7.0	2.0	1.5	1.0	1.0	0.5	0.0	---	---
13	9.5	9.0	7.0	6.5	2.0	1.5	1.0	1.0	0.0	0.0	---	---
14	10.0	9.5	6.5	5.0	2.0	2.0	1.5	1.0	1.0	0.0	---	---
15	9.5	8.0	5.0	4.0	2.0	1.5	1.5	1.0	1.0	1.0	---	---
16	8.0	7.0	4.0	4.0	2.0	2.0	1.0	0.5	1.0	0.5	2.0	0.5
17	7.0	6.0	4.5	4.0	2.0	2.0	0.5	0.5	2.0	1.0	1.5	0.5
18	8.0	6.5	5.0	4.5	2.5	2.0	0.5	0.5	2.0	1.0	1.5	0.5
19	8.5	7.0	5.5	5.0	2.5	2.5	1.0	0.5	2.0	1.0	1.5	0.0
20	8.0	7.5	5.5	5.5	2.5	1.5	0.5	0.5	---	---	1.5	0.0
21	9.0	8.0	5.5	4.5	1.5	1.5	1.0	0.5	---	---	2.0	0.5
22	9.0	8.0	4.5	4.0	1.5	1.5	1.0	0.5	---	---	2.0	0.5
23	9.5	8.0	4.0	2.5	1.5	1.5	1.0	0.0	---	---	2.5	0.5
24	9.0	9.0	2.5	2.5	2.0	1.5	1.0	0.0	---	---	2.0	0.5
25	10.0	9.0	2.5	2.5	2.0	1.5	1.0	0.5	---	---	1.5	0.5
26	9.5	9.5	3.0	2.5	1.5	1.5	1.0	0.0	2.0	1.0	2.0	0.5
27	---	---	3.0	3.0	1.5	1.5	0.0	0.0	2.0	1.0	2.0	1.0
28	---	---	3.0	3.0	1.5	1.0	0.0	0.0	---	---	2.0	1.5
29	---	---	3.5	3.0	1.5	1.0	0.0	0.0	---	---	1.5	1.5
30	---	---	3.5	3.5	1.0	1.0	0.0	0.0	---	---	3.0	1.0
31	8.0	7.5	---	---	1.0	1.0	0.0	0.0	---	---	3.0	1.5
MONTH	12.5	6.5	7.5	2.5	4.0	1.0	2.0	0.0	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	2.0	7.5	7.5	12.5	11.5	20.0	17.5	16.5	12.5	15.5	13.5
2	2.5	1.5	7.5	7.0	12.0	11.5	19.5	15.5	17.0	15.0	16.5	13.5
3	1.5	0.5	9.0	6.0	15.0	11.5	19.0	14.5	16.0	14.5	16.5	15.5
4	1.5	0.5	10.0	7.5	15.5	13.5	18.5	15.5	16.0	12.0	18.5	16.0
5	2.5	0.5	10.5	9.5	18.5	16.5	18.5	16.5	17.0	12.5	19.0	16.5
6	2.5	0.5	12.5	10.0	19.5	15.5	20.0	15.5	17.5	13.0	19.0	17.0
7	3.5	1.5	13.0	10.5	19.0	16.5	20.0	16.0	18.5	14.0	18.5	16.0
8	3.5	1.5	14.0	11.0	19.5	16.0	19.5	16.5	19.0	15.0	17.5	15.0
9	3.0	2.0	14.0	11.5	17.5	14.0	19.5	15.5	18.0	16.0	16.0	13.0
10	3.0	1.5	15.0	11.5	17.0	13.5	18.5	15.0	18.0	16.0	15.0	13.5
11	4.5	3.0	14.0	13.0	16.5	14.5	19.0	15.5	16.5	14.5	14.5	13.5
12	5.0	4.0	13.5	9.0	19.0	15.5	18.0	14.0	17.0	14.0	13.5	13.0
13	5.0	4.0	10.5	8.0	19.0	17.0	19.5	16.0	18.0	15.0	15.0	12.5
14	4.5	3.5	12.0	8.0	20.0	17.0	19.0	15.5	17.5	16.0	15.0	12.5
15	5.0	4.0	14.5	10.0	18.0	16.0	18.0	15.0	17.5	14.0	14.5	13.0
16	7.0	5.0	16.0	12.5	19.0	15.0	16.5	14.0	17.0	13.0	13.0	11.0
17	7.0	7.0	15.0	12.5	20.0	16.0	17.5	13.5	17.5	14.0	12.5	11.5
18	9.0	7.0	15.5	13.5	20.0	17.0	16.5	13.5	17.5	14.5	12.0	10.0
19	10.0	8.0	16.0	14.0	21.0	18.0	17.0	14.0	16.5	14.0	11.5	11.0
20	11.0	10.0	14.5	12.5	21.0	18.0	17.0	13.5	18.5	14.5	11.0	10.5
21	11.0	9.5	13.0	11.5	20.0	17.5	18.0	14.0	18.5	15.0	12.0	9.0
22	9.5	8.5	13.5	9.5	19.0	15.5	19.5	16.0	17.5	15.0	11.0	10.0
23	9.0	8.0	13.0	10.5	19.0	16.0	18.5	16.5	16.5	13.5	10.5	10.5
24	9.0	7.0	12.0	11.0	18.5	16.5	18.5	15.5	15.5	12.5	10.5	8.5
25	7.0	6.5	11.5	10.5	17.5	15.5	19.0	16.0	15.5	13.5	10.0	8.0
26	6.5	6.0	10.5	9.5	19.0	14.5	19.0	16.5	15.5	14.0	9.5	8.0
27	6.5	6.0	12.5	8.5	21.0	16.0	16.5	14.0	14.0	13.5	10.0	9.5
28	6.5	6.0	14.5	10.0	22.0	17.5	16.5	14.5	16.0	13.5	12.5	10.0
29	6.0	6.0	16.0	11.5	23.0	19.0	16.5	12.5	17.5	13.5	14.0	12.5
30	8.0	5.5	16.5	12.5	22.0	19.0	15.5	13.0	16.5	14.5	13.0	11.5
31	---	---	16.0	12.5	---	---	15.0	13.5	16.0	13.0	---	---
MONTH	11.0	0.5	16.5	6.0	23.0	11.5	20.0	12.5	19.0	12.0	19.0	8.0
YEAR	23.0	0.0										

04139500 RIFLE RIVER AT "THE RANCH" NEAR LUPTON, MICH.

LOCATION.—Lat 44°23'06", long 84°02'18", in SE¼ SW¼ sec.11, T.23 N., R.3 E., Ogemaw County, temperature recorder at gaging station on left bank, at downstream side of bridge, 1,300 ft downstream from Houghton Creek, and 2.7 miles south of Lupton.

DRAINAGE AREA.—56.8 sq mi.

PERIOD OF RECORD.—Water temperatures: July 1950 to September 1971 (discontinued).

EXTREMES, 1970-71:
Water temperatures: Maximum, 17.0°C July 22-27, Aug. 13-15, 20-22;minimum, freezing point on many days during January to March.
Period of record:
Water temperatures (1950-71): Maximum 22.0°C June 25, 26, 1952, July 5, 6, 9, Aug. 1, 1955, June 30, 1964, July 16, 17, 1968; minimum, freezing point on many days during winter period.

REMARKS.—Occasional regulation by dams above station. A summary of periodic specific conductance data for this station is on page79.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	9.5	10.0	9.5	4.0	2.5	0.5	0.5	0.0	0.0	0.5	0.0
2	10.0	10.0	9.5	9.0	4.0	3.5	0.5	0.5	0.0	0.0	0.0	0.0
3	10.0	10.0	9.0	9.0	3.5	3.0	0.5	0.5	0.0	0.0	0.5	0.0
4	10.0	9.5	9.0	8.5	3.0	1.5	0.5	0.5	0.0	0.0	0.0	0.0
5	9.5	9.5	8.5	8.5	2.0	1.5	0.5	0.5	0.0	0.0	0.5	0.0
6	10.0	9.5	8.5	8.5	1.5	1.0	0.5	0.5	0.0	0.0	0.5	0.0
7	10.5	10.0	8.5	8.0	1.5	1.0	0.5	0.5	0.0	0.0	0.0	0.0
8	11.0	10.5	8.0	6.5	1.5	1.0	0.5	0.5	0.0	0.0	0.0	0.0
9	12.0	11.0	8.0	6.5	2.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0
10	12.0	11.5	8.5	8.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
11	11.5	10.5	8.5	8.5	2.0	1.5	0.0	0.0	0.0	0.0	0.5	0.0
12	10.5	10.5	8.5	8.0	1.5	1.5	0.0	0.0	0.0	0.0	1.0	0.0
13	10.5	10.5	8.5	7.5	1.5	1.5	0.0	0.0	0.0	0.0	1.0	0.5
14	11.0	10.5	7.5	5.5	1.5	1.5	0.0	0.0	0.0	0.0	2.0	1.0
15	11.0	10.0	5.5	4.5	1.5	1.5	0.0	0.0	0.0	0.0	2.0	0.5
16	10.0	9.5	4.5	4.5	1.5	1.5	0.0	0.0	0.0	0.0	0.5	0.5
17	9.5	8.5	5.0	4.5	1.5	1.5	0.0	0.0	0.5	0.0	0.5	0.5
18	9.0	9.0	5.0	4.5	2.0	1.5	0.0	0.0	0.5	0.5	0.5	0.5
19	9.0	9.0	5.5	5.0	2.0	2.0	0.0	0.0	0.5	0.5	0.5	0.5
20	9.0	9.0	5.5	5.5	2.0	1.5	0.0	0.0	0.5	0.0	0.5	0.5
21	9.5	9.0	5.5	5.0	1.5	1.5	0.0	0.0	0.0	0.0	1.0	0.5
22	9.5	9.5	5.0	3.5	1.5	1.5	0.0	0.0	0.0	0.0	1.0	0.5
23	9.5	9.5	3.5	2.0	1.5	1.0	0.0	0.0	0.0	0.0	1.5	1.0
24	9.5	9.5	2.5	2.0	1.0	1.0	0.0	0.0	0.5	0.0	1.5	1.0
25	9.5	9.5	2.5	2.0	1.0	1.0	0.5	0.0	0.5	0.5	1.5	1.5
26	9.5	9.5	2.5	2.0	1.0	0.5	0.5	0.5	1.0	0.5	1.5	1.5
27	10.0	9.5	2.5	2.0	0.5	0.5	0.5	0.5	1.0	0.0	2.0	1.5
28	10.0	10.0	2.5	2.5	0.5	0.5	0.5	0.5	0.0	0.0	2.0	2.0
29	10.0	10.0	2.5	2.5	0.5	0.5	0.5	0.0	---	---	2.0	2.0
30	10.0	10.0	2.5	2.5	0.5	0.5	0.0	0.0	---	---	2.5	2.0
31	10.0	10.0	---	---	0.5	0.5	0.0	0.0	---	---	2.5	2.5
MONTH	12.0	8.5	10.0	2.0	4.0	0.5	0.5	0.0	1.0	0.0	2.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.5	2.5	8.5	8.0	12.5	11.5	16.5	16.5	15.0	14.0	13.5	13.0
2	2.5	1.5	8.0	8.0	11.5	11.5	16.5	16.5	15.0	15.0	14.0	13.5
3	1.5	1.0	8.5	7.0	13.0	11.5	16.5	16.0	15.0	14.0	14.5	14.0
4	1.5	1.0	9.0	8.0	15.0	13.0	16.5	16.0	14.5	13.5	14.5	14.0
5	2.0	1.0	10.0	9.0	15.0	14.5	16.0	16.0	15.0	13.5	15.5	14.5
6	2.0	1.5	11.0	10.0	15.5	14.0	16.5	15.5	15.5	14.0	15.5	15.0
7	2.0	1.5	11.5	10.5	16.0	15.5	16.5	16.0	16.5	15.0	15.5	15.0
8	2.0	1.5	12.0	11.0	16.0	15.5	16.5	16.5	16.5	16.0	15.5	15.0
9	2.0	1.0	12.5	11.5	15.5	14.5	16.5	15.5	16.5	16.5	15.0	13.5
10	3.0	1.0	13.0	11.5	15.0	13.5	16.5	16.0	16.5	16.5	14.0	13.0
11	5.0	2.0	13.0	12.5	14.5	14.0	16.0	16.0	16.5	16.0	13.0	13.0
12	5.0	4.0	12.5	10.0	16.0	14.5	16.0	15.0	16.0	15.0	13.0	12.5
13	4.5	3.0	10.0	8.0	16.0	15.5	16.5	15.5	17.0	16.0	12.5	12.5
14	4.5	2.0	11.5	9.0	16.0	16.0	16.5	16.0	17.0	16.5	12.5	12.5
15	6.0	3.5	12.5	10.5	16.0	15.5	16.5	15.5	17.0	15.5	13.0	12.5
16	8.0	5.0	14.5	12.5	16.0	15.0	15.5	14.5	16.5	15.0	13.0	12.0
17	8.0	6.5	14.0	12.5	16.0	15.5	15.5	14.5	16.0	15.0	12.0	11.5
18	8.5	5.5	14.5	13.0	16.5	16.0	15.5	14.0	16.5	15.5	11.5	11.0
19	9.0	6.5	14.5	14.0	16.5	16.5	15.5	14.5	16.5	15.5	11.0	11.0
20	9.0	8.0	14.5	13.0	16.5	16.0	14.5	14.0	17.0	16.0	11.0	11.0
21	8.5	7.5	13.0	12.0	16.5	16.5	16.0	15.0	17.0	16.0	11.0	9.5
22	8.5	7.5	12.5	10.0	16.5	16.0	17.0	15.5	17.0	16.0	10.0	10.0
23	8.5	7.5	12.5	11.5	16.5	16.0	17.0	17.0	16.0	15.0	10.0	10.0
24	8.0	6.5	12.0	11.5	16.5	16.0	17.0	16.5	15.0	13.5	10.0	9.5
25	7.5	7.0	11.5	11.5	16.5	15.5	17.0	16.5	14.5	13.5	9.5	8.5
26	8.0	7.0	11.5	10.5	15.5	14.5	17.0	17.0	14.5	14.0	9.0	9.0
27	8.0	7.5	11.5	10.0	16.5	15.5	17.0	15.0	14.0	14.0	9.5	9.0
28	7.5	7.0	12.5	11.0	16.5	16.5	15.5	15.0	14.5	14.0	11.0	9.5
29	7.0	7.0	13.5	12.0	16.5	16.5	15.0	13.5	14.5	14.0	12.0	11.0
30	8.5	7.0	14.0	13.0	16.5	16.5	15.5	14.0	14.5	14.0	12.0	11.5
31	---	---	14.0	12.5	---	---	15.0	14.5	14.0	13.0	---	---
MONTH	9.0	1.0	14.5	7.0	16.5	11.5	17.0	13.5	17.0	13.0	15.5	8.5
YEAR	17.0	0.0										

04140500 RIFLE RIVER AT SELKIRK, MICH.

LOCATION.—Lat 44°18'48", long 84°04'10", in SE¼ NE¼ sec.9, T.22 N., R.3 E., Ogemaw County, temperature recorder at gaging station on left bank at upstream side of bridge on State road at Selkirk, 1.0 miles downstream from Klacking Creek.

DRAINAGE AREA.—117 sq mi.

PERIOD OF RECORD.—Water temperatures: October 1950 to September 1971.

EXTREMES, 1970-71:
Water temperatures: Maximum, 24.0°C June 29; minimum, freezing point on many days during January to March.
Period of record:
Water temperatures (1950-71): Maximum, 26.0°C Aug. 1, 1955; minimum, freezing point on many days during winter period.

REMARKS.—A summary of periodic specific conductance data for this station is on page79.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	8.5	8.5	7.0	4.0	2.5	0.5	0.5	0.0	0.0	0.5	0.0
2	11.5	10.0	7.0	6.5	4.0	3.5	0.5	0.0	0.0	0.0	0.5	0.0
3	11.0	10.0	8.0	7.0	3.5	3.0	0.0	0.0	0.0	0.0	0.5	0.0
4	10.0	9.0	8.0	7.5	3.0	1.5	0.0	0.0	0.0	0.0	0.5	0.0
5	10.0	8.5	7.5	7.0	1.5	1.0	0.0	0.0	0.0	0.0	0.5	0.0
6	12.0	10.0	7.5	7.0	1.0	0.5	0.0	0.0	0.0	0.0	0.5	0.5
7	13.0	12.0	7.5	7.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5
8	13.5	12.5	7.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5
9	14.5	13.5	6.5	5.5	1.5	0.5	0.0	0.0	0.0	0.0	0.5	0.0
10	14.5	12.0	7.5	6.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
11	12.0	10.0	7.5	7.5	1.5	1.0	0.0	0.0	0.0	0.0	1.0	0.0
12	10.5	10.0	7.5	7.5	1.0	1.0	0.0	0.0	0.0	0.0	1.5	0.5
13	10.5	10.5	7.5	6.5	1.0	1.0	0.0	0.0	0.0	0.0	1.5	1.0
14	11.0	10.5	6.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	2.5	1.5
15	10.5	9.0	4.5	3.0	1.0	0.5	0.0	0.0	0.0	0.0	2.5	1.5
16	9.0	8.0	3.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	1.5	1.5
17	8.5	7.0	4.0	3.0	1.0	0.5	0.0	0.0	0.0	0.0	1.5	1.0
18	10.0	8.0	4.5	4.0	1.5	1.0	0.0	0.0	0.0	0.0	1.0	1.0
19	9.5	8.5	5.5	4.5	2.0	1.5	0.0	0.0	0.0	0.0	1.0	0.5
20	9.0	8.5	6.0	5.5	2.0	1.0	0.0	0.0	0.0	0.0	1.0	0.5
21	10.0	9.0	6.0	4.5	1.0	0.5	0.0	0.0	0.0	0.0	1.5	0.5
22	9.5	8.5	4.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	1.5	0.5
23	10.0	9.5	3.5	1.5	0.5	0.5	0.0	0.0	0.0	0.0	2.5	1.5
24	10.0	9.5	1.5	1.5	0.5	0.5	0.0	0.0	0.0	0.0	2.0	1.0
25	11.0	10.0	1.5	1.5	0.5	0.5	0.0	0.0	0.0	0.0	1.5	1.0
26	10.5	10.5	2.0	1.5	0.5	0.5	0.0	0.0	0.0	0.0	2.5	1.0
27	10.5	10.0	2.5	2.0	0.5	0.5	0.0	0.0	0.5	0.0	2.0	1.5
28	10.5	10.0	2.5	2.0	0.5	0.5	0.0	0.0	0.5	0.5	2.0	2.0
29	10.0	10.0	2.5	2.0	0.5	0.5	0.0	0.0	---	---	2.5	2.0
30	10.0	9.0	2.5	2.5	0.5	0.5	0.0	0.0	---	---	4.0	1.5
31	9.0	8.5	---	---	0.5	0.5	0.0	0.0	---	---	3.5	2.5
MONTH	14.5	7.0	8.5	1.5	4.0	0.5	0.5	0.0	0.5	0.0	4.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.5	2.5	10.0	9.0	13.0	11.5	22.0	19.5	17.5	14.5	17.0	15.0
2	2.5	1.5	9.5	8.5	12.5	12.0	20.5	17.5	17.0	16.5	17.5	15.5
3	1.5	1.5	11.0	7.0	16.5	12.5	20.0	16.0	16.5	15.0	18.5	17.5
4	1.5	1.5	12.0	8.5	19.0	15.0	19.5	17.0	16.5	13.5	20.0	18.0
5	2.5	1.5	12.5	10.5	18.5	16.5	19.0	18.0	17.5	13.5	20.5	18.5
6	2.5	1.5	14.0	10.5	19.5	15.5	20.5	16.5	18.0	14.5	20.0	19.0
7	2.0	1.5	14.5	10.5	20.0	18.0	21.0	18.0	19.0	15.5	21.0	19.0
8	2.5	1.5	15.0	11.5	19.5	17.0	20.5	18.0	20.0	17.0	19.5	17.5
9	2.0	1.5	16.0	12.0	18.0	15.0	20.5	17.0	20.0	18.0	19.0	16.5
10	4.5	1.5	16.5	12.0	17.5	13.5	20.0	16.5	20.0	18.5	17.5	16.0
11	6.5	3.0	15.5	13.5	17.5	15.0	20.0	17.0	18.5	16.0	16.5	16.0
12	6.5	6.0	13.5	10.0	19.5	16.0	19.0	15.5	17.5	14.5	16.0	15.5
13	7.5	5.0	11.5	8.0	19.0	18.0	20.5	18.0	19.0	16.0	17.5	15.5
14	5.5	3.0	14.5	9.5	19.5	18.0	20.0	17.0	18.5	17.5	17.5	15.5
15	6.5	4.0	16.5	11.5	19.0	17.0	19.0	16.5	19.0	15.5	17.0	16.0
16	8.0	5.5	18.0	14.5	19.0	16.5	17.0	15.5	18.0	14.5	16.0	14.0
17	8.5	7.0	16.5	13.5	20.0	16.5	18.0	15.0	19.0	15.0	14.5	13.5
18	9.5	6.5	17.5	15.0	20.0	17.5	17.0	15.0	19.5	16.0	14.5	12.5
19	10.0	7.5	18.0	15.5	21.0	18.5	17.5	15.0	18.5	16.5	13.5	13.0
20	10.5	9.5	16.5	13.5	21.5	19.0	17.0	15.0	20.0	17.0	13.0	13.0
21	10.5	8.5	14.5	12.5	20.5	18.5	18.0	15.0	20.0	17.0	13.0	11.0
22	10.5	8.0	15.5	10.5	19.5	17.0	20.0	17.0	19.0	16.5	13.0	11.5
23	10.5	8.0	14.5	12.5	19.5	17.5	19.5	18.5	17.5	15.0	13.0	12.0
24	10.0	7.0	14.0	12.5	19.5	17.5	19.5	17.5	16.0	13.5	12.0	10.0
25	8.0	6.5	12.5	12.0	18.5	17.0	19.5	17.5	16.5	15.0	10.5	9.5
26	9.5	7.0	12.0	10.5	19.0	15.0	19.5	17.5	16.5	15.5	11.0	10.0
27	9.0	7.5	13.5	9.5	21.0	17.0	17.5	15.0	15.5	15.0	11.5	11.0
28	8.0	7.0	15.5	12.0	23.0	19.0	17.0	15.0	17.0	15.0	14.0	11.5
29	7.5	6.5	16.5	13.0	24.0	21.0	16.0	13.0	18.5	15.0	15.5	14.0
30	10.0	6.5	17.5	13.5	23.0	21.0	17.0	14.0	17.5	15.5	15.0	14.0
31	---	---	17.0	13.0	---	---	17.0	15.5	17.0	15.0	---	---
MONTH	10.5	1.5	18.0	7.0	24.0	11.5	22.0	13.0	20.0	13.5	21.0	9.5
YEAR	24.0	0.0										

04142000 RIFLE RIVER NEAR STERLING, MICH.
(International Hydrological Decade River Station)

LOCATION.--Lat 44°04'21", long 84°01'12", in NE1/4 SW1/4 sec.5, T.19 N., R.4 E., Arenac County, at gaging station on left bank 30 ft downstream from bridge on old-M70, 2.8 miles north of Sterling, and 20 miles upstream from mouth.

DRAINAGE AREA.--320 sq mi, approximately.

PERIOD OF RECORD.--Sediment records: April to September 1966, October 1969 to September 1970, water years 1967-69, 1971 (partial-record station).

REMARKS.--Flow affected by ice Dec. 6-8, 15-17, 22-25, Dec. 27 to Mar. 27. Occasional regulation by dams upstream from station.

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	--	--	--	250	22	15	760	30	62
2	--	--	--	250	22	15	680	16	29
3	--	--	--	250	22	15	600	13	21
4	--	--	--	250	22	15	560	12	18
5	--	--	--	250	27	18	520	11	15
6	--	--	--	270	40	29	490	11	15
7	--	--	--	280	29	22	460	10	12
8	--	--	--	--	--	--	450	11	13
9	--	--	--	--	--	--	450	13	16
10	--	--	--	--	--	--	450	15	18
11	--	--	--	--	--	--	430	17	20
12	--	--	--	--	--	--	410	19	21
13	--	--	--	--	--	--	400	21	23
14	--	--	--	--	--	--	400	21	23
15	--	--	--	--	--	--	480	116	204
16	--	--	--	--	--	--	800	240	518
17	--	--	--	--	--	--	1150	163	506
18	250	22	15	--	--	--	1000	124	335
19	250	22	15	--	--	--	800	97	210
20	250	22	15	450	38	46	720	73	142
21	250	22	15	560	45	68	640	52	90
22	250	22	15	680	32	59	560	37	56
23	250	22	15	620	26	44	500	30	41
24	250	22	15	640	24	41	480	30	39
25	250	22	15	640	23	40	450	29	35
26	250	22	15	620	24	40	430	28	33
27	250	22	15	610	59	97	420	26	29
28	250	22	15	800	52	112	438	26	31
29	250	22	15	--	--	--	452	26	32
30	250	22	15	--	--	--	473	26	33
31	250	22	15	--	--	--	543	34	50
TOTAL	--	--	--	--	--	--	17396	--	2690

04142000 RIFLE RIVER NEAR STERLING, MICH.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971--Continued

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	981	131	349						
2	1570	284	1200						
3	1580	189	806						
4	1240	138	462						
5	992	124	332						
6	1040	118	331						
7	1340	144	521						
8	1700	148	679						
9	2010	201	1090						
10	1820	136	668						
11	1610	134	582						
12	1630	144	634						
13	2300	244	1520						
14	2340	154	973						
15	1510	109	444						
16	1090	76	224						
17	1000	81	219						
18	1130	92	281						
19	977	72	190						
20	801	58	125						
21	691	48	90						
22	608	42	69						
23	542	38	56						
24	497	35	47						
25	--	--	--						
26	--	--	--						
27	--	--	--						
28	--	--	--						
29	--	--	--						
30	--	--	--						
31	--	--	--						
TOTAL	--	--	--						

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, PERIOD OCTOBER 1969 TO SEPTEMBER 1971

DATE	TIME	NUMBER OF SAM-PLING POINTS	BED MAT. SIEVE DIAM. FINER THAN .062 MM	BED MAT. SIEVE DIAM. FINER THAN .125 MM	BED MAT. SIEVE DIAM. FINER THAN .250 MM	BED MAT. SIEVE DIAM. FINER THAN .500 MM	BED MAT. SIEVE DIAM. FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. FINER THAN 32.0 MM
MAY 20, 1970	1300	2	0	0	2	25	32	40	50	65	88	100
OCT. 13......	1230	1	9	16	62	99	100	--	--	--	--	--
OCT. 13......	1235	2	0	0	13	82	96	99	100	--	--	--
JULY 14, 1971	1430	1	12	31	80	99	100	--	--	--	--	--
JULY 14......	1432	1	0	0	3	14	29	38	52	68	100	--
JULY 14......	1435	2	0	0	8	78	96	99	100	--	--	--
JULY 14......	1438	1	0	0	8	52	80	92	98	99	100	--
JULY 14......	1440	1	0	2	7	18	20	21	26	37	57	100

04144000 SHIAWASSEE RIVER AT BYRON, MICHIGAN

LOCATION.--Lat 42°49'25", long 083°56'45", on line between sec.14 and 23, T.5 N., R.4 E., Shiawassee County, temperature recorder at gaging station on upstream side of highway bridge at Byron, 0.3 mile downstream from Mill dam which is just upstream from South Branch Shiawassee River.

DRAINAGE AREA.--368 sq mi.

PERIOD OF RECORD.—March 1962 to September 1971.

EXTREMES: 1970-71:

Water Temperatures: Maximum, 29.0°C June 28; minimum, freezing point on several days during January to March.

Period of record: (1962-71)

Water temperatures: Maximum, 26.5°C July 2, 3, Aug. 1; minimum, freezing point on several days during Jan. and Feb.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.0	11.0	10.0	6.0	4.0	0.5	0.5	0.0	0.0	0.0	0.0
2	12.0	12.0	11.0	9.5	6.0	6.0	0.5	0.5	0.0	0.0	0.0	0.0
3	12.0	11.5	9.5	9.0	6.0	5.0	0.5	0.5	0.0	0.0	0.0	0.0
4	11.5	11.0	9.0	9.0	5.0	4.0	0.5	0.5	0.0	0.0	0.0	0.0
5	12.0	11.0	9.0	8.0	4.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0
6	14.0	12.0	8.0	8.0	3.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
7	14.5	14.0	8.0	8.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
8	15.5	14.5	8.0	6.5	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
9	16.5	15.5	8.0	6.5	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
10	16.5	14.5	9.0	8.0	2.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
11	15.0	13.5	9.0	9.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0
12	14.5	14.0	9.0	9.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
13	15.0	14.5	9.0	8.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.0
14	15.0	15.0	8.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	2.0	1.0
15	15.0	13.0	6.0	4.5	0.5	0.5	0.0	0.0	0.0	0.0	2.0	2.0
16	13.0	10.5	4.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	2.0	1.0
17	10.5	9.5	3.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.0
18	10.5	9.5	4.5	3.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.0
19	11.0	10.5	5.0	4.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.5
20	11.0	11.0	5.5	5.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.5
21	11.0	11.0	5.5	5.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.0
22	11.0	11.0	5.5	4.5	0.5	0.5	0.0	0.0	0.0	0.0	2.0	0.5
23	11.0	11.0	4.5	1.0	0.5	0.5	0.0	0.0	0.0	0.0	2.0	1.0
24	11.5	11.0	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.0
25	12.0	11.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	2.0	0.0
26	12.0	11.5	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	3.0	1.0
27	12.0	11.5	1.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0	3.0	2.0
28	12.0	12.0	2.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	4.0	3.5
29	12.0	12.0	3.0	2.0	0.5	0.5	0.0	0.0	---	---	4.0	3.5
30	12.0	11.5	3.5	3.0	0.5	0.5	0.0	0.0	---	---	4.0	2.0
31	11.5	11.0	---	---	0.5	0.5	0.0	0.0	---	---	5.0	3.5
MONTH	16.5	9.5	11.0	0.5	6.0	0.5	0.5	0.0	0.0	0.0	5.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.5	5.0	12.0	10.0	19.0	16.5	27.0	25.0	21.5	19.0	21.0	19.5
2	5.5	5.0	12.0	11.0	18.0	16.0	26.0	24.0	23.5	20.5	23.5	21.0
3	5.0	3.5	13.5	9.5	20.0	16.5	25.0	21.5	23.0	21.0	23.5	22.0
4	3.5	3.0	13.0	10.0	22.0	18.0	25.0	22.0	21.5	19.5	24.5	23.5
5	5.5	3.5	14.5	11.0	23.5	20.0	25.0	23.0	22.0	19.0	26.0	23.5
6	6.5	4.5	16.5	13.0	23.0	21.0	25.5	21.5	23.0	20.0	26.0	24.5
7	8.5	5.5	16.0	13.5	24.5	21.0	26.0	23.0	24.0	20.5	26.0	24.0
8	10.0	6.5	17.0	14.0	24.0	19.5	26.0	24.0	25.0	21.5	26.5	24.5
9	10.0	9.0	18.0	14.5	20.5	19.0	25.5	24.0	25.0	22.0	26.5	24.0
10	10.0	8.0	19.0	14.5	20.5	18.0	25.5	23.5	26.0	24.0	25.0	23.5
11	11.5	9.0	18.0	15.5	21.5	18.5	25.5	23.5	24.0	23.0	24.0	22.0
12	13.0	11.0	15.5	13.5	24.5	20.5	24.5	21.0	23.0	20.5	22.0	21.0
13	13.0	10.0	15.5	11.5	25.0	21.5	24.5	22.0	24.0	20.5	21.0	20.0
14	10.0	8.0	17.0	13.0	24.0	21.5	24.5	21.5	25.0	23.0	20.5	18.5
15	10.5	9.0	19.0	14.5	25.0	21.0	24.0	21.0	24.0	21.5	20.5	19.5
16	12.0	10.0	20.0	16.5	25.0	21.5	24.5	20.5	23.0	19.5	19.5	18.5
17	12.0	11.5	20.0	16.5	26.0	22.0	24.0	21.5	24.0	20.5	19.5	18.5
18	13.5	11.5	21.0	18.0	26.0	23.0	23.5	20.0	24.5	21.5	18.5	17.0
19	14.5	12.0	21.5	19.0	27.0	24.0	23.5	20.0	24.0	21.5	17.0	16.5
20	16.0	13.5	19.5	18.0	27.0	24.5	22.0	18.5	26.0	23.0	16.5	16.0
21	16.0	14.0	18.0	15.5	26.5	24.0	23.5	20.5	26.5	24.5	16.0	14.5
22	14.5	12.0	18.0	13.5	25.0	21.5	24.5	21.5	26.5	24.0	16.0	14.5
23	14.5	11.5	19.0	14.5	25.0	21.5	24.0	23.0	25.5	22.0	16.0	15.0
24	14.0	10.5	18.0	15.5	26.0	21.5	24.0	23.0	23.0	20.0	15.0	14.0
25	11.0	10.0	18.0	14.5	26.0	24.0	24.0	21.5	24.5	21.0	15.0	14.0
26	10.5	9.5	14.5	12.0	26.0	23.0	24.0	22.0	23.5	21.0	14.0	14.0
27	10.0	9.0	15.5	11.5	27.0	24.0	21.5	20.0	21.0	20.0	15.0	14.0
28	9.0	9.0	16.5	12.0	29.0	25.5	21.5	20.0	21.0	20.0	18.0	14.5
29	9.0	8.5	19.0	14.5	28.5	26.0	21.0	18.5	23.5	20.0	19.5	18.0
30	11.0	8.0	19.0	15.5	28.5	26.0	21.0	19.5	23.5	20.5	19.0	18.0
31	---	---	20.0	17.0	---	---	20.5	19.5	23.5	20.0	---	---
MONTH	16.0	3.0	21.5	9.5	29.0	16.0	27.0	18.5	26.5	19.0	26.5	14.0
YEAR	29.0	0.0										

04144500 SHIAWASSEE RIVER AT OWOSSO, MICH.
(International Hydrological Decade River Station)

LOCATION.--La. 43°00'10", long 84°11'15", in SE1/4 sec.14, T.7 N., R.2 E., Shiawassee County, at West Oliver Street bridge in Owosso, 1.0 mile upstream from gaging station.

DRAINAGE AREA.--538 sq mi (at gaging station).

PERIOD OF RECORD.--Sediment records: May 1966 to September 1968, water years 1969-70 (partial-record station), October 1970 to September 1971.

EXTREMES.--1970-71:
Sediment concentrations: Maximum daily, 647 mg/l June 14; minimum daily, 4 mg/l on many days during November, December, March, and April.
Sediment discharges: Maximum daily, 1,710 tons Mar. 15; minimum daily, 1.5 tons Jan. 30 to Feb. 3.
Period of record:
Sediment concentrations: Maximum daily, 647 mg/l June 14, 1971; minimum daily, 1 mg/l on several days in 1966 and 1967.
Sediment discharges: Maximum daily, 3,460 tons Apr. 17, 1967; minimum daily, 0.37 ton Oct. 9, 1967.

REMARKS.--Daily sediment discharges are reported for 212 days during which 81 percent of the flow occurred. No inflow between sampling site and gaging station. Flow affected by ice Dec. 28 to Mar. 1.

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	211	14	8.0	284	17	13	400	12	13
2	157	11	5.9	313	27	23	450	10	12
3	186	9	4.5	372	27	27	450	9	11
4	175	8	3.8	455	23	28	450	8	9.7
5	171	8	3.7	481	14	18	450	7	8.5
6	162	8	3.5	444	10	12	430	6	7.0
7	155	8	3.3	423	10	11	400	4	4.3
8	154	8	3.3	393	10	10	400	5	5.4
9	156	9	3.8	354	10	9.6	320	8	6.9
10	142	9	3.5	355	9	8.6	260	7	4.9
11	126	10	3.4	359	8	7.8	227	6	3.7
12	125	10	3.4	367	8	7.9	213	5	2.9
13	130	10	3.5	395	7	7.5	223	4	2.4
14	210	28	16	395	6	6.4	234	4	2.5
15	243	18	12	375	5	5.1	202	4	2.2
16	263	17	12	357	4	3.9	--	--	--
17	273	17	13	336	4	3.6	--	--	--
18	277	17	13	324	5	4.4	--	--	--
19	256	17	12	312	5	4.2	--	--	--
20	234	17	11	315	6	5.1	--	--	--
21	239	17	11	313	7	5.9	400	8	8.6
22	259	17	12	300	8	6.5	328	7	6.2
23	268	17	12	290	8	6.3	352	6	5.7
24	271	17	12	270	8	5.8	335	5	4.5
25	271	17	12	250	9	6.1	308	5	4.2
26	271	17	12	240	10	6.5	301	5	4.1
27	272	17	12	240	10	6.5	294	5	4.0
28	263	17	12	300	11	8.9	260	5	3.5
29	277	17	13	330	12	11	230	5	3.1
30	272	17	12	370	12	12	210	5	2.8
31	300	17	14	--	--	--	200	5	2.7
TOTAL	5917	--	276.6	10312	--	291.6	--	--	--

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	190	5	2.6	110	5	1.5	1600	36	156
2	180	5	2.4	110	5	1.5	1520	26	107
3	180	5	2.4	110	5	1.5	1310	22	78
4	--	--	--	--	--	--	1090	19	56
5	--	--	--	--	--	--	1070	18	52
6	--	--	--	--	--	--	948	18	46
7	--	--	--	--	--	--	769	18	37
8	--	--	--	--	--	--	628	15	25
9	--	--	--	--	--	--	631	12	20
10	220	5	3.0	--	--	--	689	12	22
11	210	5	2.8	--	--	--	687	14	26
12	200	5	2.7	--	--	--	655	14	25
13	190	5	2.6	--	--	--	598	14	23
14	190	5	2.6	--	--	--	554	43	170
15	180	5	2.4	--	--	--	2750	230	1710
16	170	5	2.3	--	--	--	1910	103	531
17	160	5	2.2	--	--	--	1580	38	162
18	150	5	2.0	--	--	--	1570	25	106
19	150	5	2.0	--	--	--	1560	22	93
20	140	5	1.9	--	--	--	1560	18	76
21	140	5	1.9	--	--	--	1360	15	55
22	140	5	1.9	1400	72	272	1220	12	40
23	130	5	1.8	1400	50	189	1150	10	31
24	130	5	1.8	1400	68	257	1030	8	22
25	130	5	1.8	1300	51	179	935	6	15
26	120	5	1.6	1300	98	344	873	5	12
27	120	5	1.6	1300	114	400	831	4	9.0
28	120	5	1.6	1400	46	174	774	4	8.4
29	120	5	1.6	--	--	--	733	4	7.9
30	110	5	1.5	--	--	--	682	4	7.4
31	110	5	1.5	--	--	--	646	4	7.0
TOTAL	--	--	--	--	--	--	34313	--	3735.7

04144500 SHIAWASSEE RIVER AT OWOSSO, MICH.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971--Continued

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	623	4	6.7	280	18	14	--	--	--
2	601	4	6.5	269	18	13	--	--	--
3	579	4	6.3	250	18	12	--	--	--
4	564	4	6.1	251	18	12	--	--	--
5	543	4	5.9	233	18	11	--	--	--
6	512	4	5.5	215	17	9.9	--	--	--
7	487	4	5.3	199	17	9.1	--	--	--
8	463	4	5.0	194	17	8.9	--	--	--
9	446	4	4.8	187	16	8.1	--	--	--
10	422	4	4.6	173	16	7.5	--	--	--
11	390	4	4.2	138	17	6.3	--	--	--
12	409	9	9.9	174	18	8.5	--	--	--
13	--	--	--	170	19	8.7	--	--	--
14	--	--	--	167	19	8.6	401	647	701
15	--	--	--	162	20	8.7	--	--	--
16	--	--	--	161	20	8.7	--	--	--
17	536	20	29	155	20	8.4	--	--	--
18	523	20	28	141	20	7.6	--	--	--
19	498	20	27	141	21	8.0	--	--	--
20	472	20	25	139	22	8.3	--	--	--
21	436	20	24	123	22	7.3	--	--	--
22	423	20	23	110	23	6.8	--	--	--
23	395	20	21	98	24	6.4	--	--	--
24	373	19	19	99	24	6.4	--	--	--
25	355	19	18	--	--	--	--	--	--
26	340	19	17	--	--	--	--	--	--
27	315	19	16	--	--	--	--	--	--
28	317	19	16	--	--	--	--	--	--
29	311	18	15	--	--	--	--	--	--
30	291	18	14	--	--	--	--	--	--
31	--	--	--	--	--	--	--	--	--
TOTAL	--	--	--	--	--	--	--	--	--

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	--	--	--						
2	--	--	--						
3	--	--	--						
4	--	--	--						
5	--	--	--						
6	340	177	169						
7	218	68	40						
8	158	50	21						
9	132	46	16						
10	116	45	14						
11	115	44	14						
12	121	43	14						
13	120	42	14						
14	--	--	--						
15	--	--	--						

TOTAL DISCHARGE FOR REPORTED DAYS (CFS-DAYS)	91055
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR REPORTED DAYS (TONS)	7901.7

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, PERIOD OCTOBER 1968 TO SEPTEMBER 1971

						PARTICLE SIZE										
						PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED										
DATE	TIME	WATER TEMP-ERA-TURE (°C)	DISCHARGE (CFS)	CONCEN-TRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	.002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00
JULY 5, 1969	0700	--	1500	424	1720	60	73	79	83	87	91	97	99	100	--	--
MAR. 15, 1971	0800	--	2930	267	2110	52	63	73	81	87	90	93	100	--	--	--
JUNE 14......	1200	--	392	711	753	78	94	98	99	99	100	--	--	--	--	--
JULY 6.......	0700	--	402	309	335	79	94	96	98	99	99	100	--	--	--	--

04151500 CASS RIVER AT FRANKENMUTH, MICH.
(International Hydrological Decade River Station)

LOCATION.--Lat 43°19'50", long 83°45'25", in NW1/4 SE1/4 sec.27, T.11 N., R.6 E., Saginaw County, at bridge on Dehmel Road, 0.7 mile downstream from gaging station, 1.1 miles downstream from dam in Frankenmuth, 2.7 miles upstream from Dead Creek, and 16 miles upstream from mouth.

DRAINAGE AREA.--848 sq mi (at gaging station).

PERIOD OF RECORD.--Sediment records: May 1966 to September 1971.

REMARKS.--No sediment records available Oct. 1 to Dec. 30. Daily records of water discharge for Oct. 1 to Feb. 28 are published in Part 1 of this report. Flow affected by ice Dec. 21 to Mar. 13, Mar. 21-26. Occasional regulation by dams upstream from station.

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	--	--	--	--	--	--	--	--	--
2	--	--	--	135	18	6.6	4000	60	648
3	--	--	--	--	--	--	3500	37	350
4	--	--	--	--	--	--	2500	20	135
5	--	--	--	--	--	--	2000	15	81
6	--	--	--	--	--	--	1800	14	68
7	--	--	--	--	--	--	1500	12	49
8	--	--	--	--	--	--	1300	11	39
9	--	--	--	--	--	--	1100	10	30
10	--	--	--	--	--	--	1000	8	22
11	--	--	--	--	--	--	900	7	17
12	--	--	--	--	--	--	850	6	14
13	--	--	--	--	--	--	840	6	14
14	--	--	--	--	--	--	1100	12	36
15	--	--	--	--	--	--	4510	163	2190
16	--	--	--	235	15	9.5	6680	232	4180
17	--	--	--	--	--	--	7990	200	4310
18	--	--	--	--	--	--	6290	84	1430
19	205	9	5.0	--	--	--	4440	41	492
20	--	--	--	--	--	--	3190	24	207
21	--	--	--	--	--	--	2200	18	107
22	--	--	--	--	--	--	2000	17	92
23	--	--	--	--	--	--	1800	14	68
24	--	--	--	--	--	--	1700	13	60
25	--	--	--	--	--	--	1500	13	53
26	--	--	--	--	--	--	1300	12	42
27	--	--	--	--	--	--	1270	12	41
28	--	--	--	--	--	--	--	--	--
29	--	--	--	--	--	--	--	--	--
30	--	--	--	--	--	--	--	--	--
31	--	--	--	--	--	--	--	--	--
TOTAL	--	--	--	--	--	--	--	--	--

04151500 CASS RIVER AT FRANKENMUTH, MICH.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971--Continued

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1980	107	572	398	16	17	153	11	4.5
2	2350	52	330	398	17	18	146	11	4.3
3	2390	23	148	398	17	18	155	12	5.0
4	1820	16	79	374	17	17	159	12	5.2
5	1400	15	57	342	18	17	160	12	5.2
6	1160	14	44	318	18	15	152	12	4.9
7	1020	13	36	293	18	14	137	12	4.4
8	942	12	31	274	18	13	129	12	4.2
9	901	11	27	256	18	12	125	12	4.1
10	876	9	21	239	18	12	140	12	4.5
11	831	8	18	227	18	11	131	12	4.2
12	772	8	17	232	17	11	137	12	4.4
13	929	13	33	242	17	11	137	12	4.4
14	1220	27	89	237	17	11	154	12	5.0
15	1170	22	69	220	16	9.5	170	12	5.5
16	918	16	40	205	15	8.3	167	11	5.0
17	801	13	28	192	15	7.8	133	10	3.6
18	798	12	26	179	14	6.8	112	9	2.7
19	726	11	22	175	13	6.1	98	10	2.6
20	644	10	17	183	12	5.9	87	11	2.6
21	576	10	16	195	12	6.3	80	12	2.6
22	528	9	13	180	12	5.8	78	14	2.9
23	470	8	10	163	12	5.3	70	15	2.8
24	431	8	9.3	162	12	5.2	67	16	2.9
25	420	9	10	225	28	17	67	18	3.3
26	417	10	11	296	37	30	64	19	3.3
27	391	11	12	259	17	12	65	20	3.5
28	374	12	12	243	11	7.2	62	18	3.0
29	394	14	15	213	10	5.8	60	16	2.6
30	401	15	16	188	10	5.1	57	14	2.2
31	--	--	--	169	10	4.6	--	--	--
TOTAL	28050	--	1828.3	7675	--	345.7	3452	--	115.4

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	61	12	2.0	32	6	.52	62	11	1.8
2	61	10	1.6	33	7	.62	57	10	1.5
3	55	10	1.5	38	20	2.1	54	10	1.5
4	50	10	1.4	37	16	1.6	55	10	1.5
5	52	11	1.5	35	12	1.1	54	10	1.5
6	63	12	2.0	33	10	.89	52	10	1.4
7	66	12	2.1	31	8	.67	73	18	3.5
8	61	13	2.1	29	6	.47	70	17	3.2
9	58	14	2.2	28	6	.45	58	11	1.7
10	53	13	1.9	28	6	.45	53	8	1.1
11	47	18	2.3	32	7	.60	47	7	.89
12	44	22	2.6	33	7	.62	45	7	.85
13	44	26	3.1	30	8	.65	45	7	.85
14	42	28	3.2	27	8	.58	44	8	.95
15	41	27	3.0	25	9	.61	41	9	1.0
16	41	25	2.8	25	9	.61	39	10	1.1
17	41	23	2.5	24	10	.65	37	11	1.1
18	39	22	2.3	24	10	.65	36	12	1.2
19	40	21	2.3	24	10	.65	36	13	1.3
20	41	19	2.1	24	10	.65	46	12	1.5
21	41	18	2.0	24	10	.65	57	12	1.8
22	37	17	1.7	23	10	.62	61	11	1.8
23	32	15	1.3	26	10	.70	56	10	1.5
24	35	13	1.2	31	10	.84	52	10	1.4
25	35	13	1.2	34	10	.92	47	10	1.3
26	33	12	1.1	60	11	1.8	51	8	1.1
27	32	11	.95	120	11	3.6	54	8	1.2
28	35	10	.95	120	12	3.9	55	8	1.2
29	38	9	.92	99	11	2.9	54	9	1.3
30	37	8	.80	82	11	2.4	51	9	1.2
31	34	7	.64	70	11	2.1	--	--	--
TOTAL	1389	--	57.26	1281	--	35.57	1542	--	43.24

04159130 ST. CLAIR RIVER AT PORT HURON, MICH.

LOCATION.--Lat 42°59'19", long 82°25'29", in SE1/4 sec.3, T.6 N., R.17 E., St. Clair County, at Port Huron municipal raw-water intake at Pine Grove Park at Port Huron.

DRAINAGE AREA.--222,400 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1971.

REMARKS.--Station operated as part of the Environmental Protection Agency (EPA) national network. Weekly chemical analyses furnished by City of Port Huron Water Department. Radiochemical and trace element analyses by the EPA. Station operated by the former Federal Water Quality Administration (now EPA) during the period May 1960 to September 1969. No discharge records available. **Additional analyses on page 125.**

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)
OCT.									
05...	0900	--	--	79	17	6.0	--	--	.2
12...	0900	--	--	78	18	6.0	--	--	--
19...	0830	--	--	78	18	6.0	--	--	--
26...	0930	--	--	78	18	6.5	--	--	--
NOV.									
02...	0830	--	--	78	14	7.0	--	--	.2
09...	0830	--	--	78	16	7.0	--	--	--
16...	0915	--	--	79	11	7.0	--	--	--
23...	0900	--	--	78	13	6.5	--	--	--
30...	0900	--	--	78	13	7.0	--	--	--
DEC.									
07...	0930	--	--	79	14	7.0	--	--	.3
14...	0900	--	--	78	15	7.0	--	--	--
21...	0830	--	--	78	14	6.5	--	--	--
28...	0940	--	--	78	16	7.0	--	--	--
JAN.									
04...	0900	3.9	1.0	78	17	7.0	.13	.01	.3
11...	0810	--	--	77	16	6.0	--	--	--
18...	0830	--	--	78	15	6.0	--	--	--
25...	0930	--	--	78	14	6.0	--	--	--
FEB.									
01...	0915	--	--	79	18	6.0	--	--	.3
08...	0830	--	--	79	15	6.0	--	--	--
16...	0900	--	--	79	14	7.0	--	--	--
22...	0930	--	--	79	12	7.0	--	--	--
MAR.									
01...	0830	--	--	80	16	7.0	.04	.00	.2
02...	0900	--	--	--	--	--	.00	.02	.3
08...	0930	--	--	79	14	7.0	--	--	--
12...	0830	--	--	--	--	--	--	--	--
15...	0820	--	--	79	16	7.0	--	--	--
22...	0920	--	--	79	17	7.0	--	--	--
29...	0900	--	--	78	14	6.0	--	--	--
APR.									
05...	0900	--	--	79	13	6.0	--	--	.3
12...	0830	--	--	79	14	6.0	--	--	--
19...	0930	--	--	79	20	10	--	--	--
26...	0915	--	--	78	15	8.0	--	--	--
MAY									
03...	0915	--	--	78	16	10	--	--	.2
10...	0830	--	--	79	15	9.0	--	--	--
17...	0830	--	--	78	16	10	--	--	--
24...	0900	--	--	78	14	7.0	--	--	--
JUNE									
01...	0915	--	--	78	16	7.0	--	--	--
07...	0915	--	--	78	15	10	--	--	--
14...	0920	--	--	78	18	6.0	--	--	--
21...	0915	--	--	78	18	7.0	--	--	--
28...	0930	3.6	.5	78	14	6.0	.01	.02	.2
JULY									
06...	0900	--	--	78	16	7.0	--	--	--
12	0930	--	--	78	16	6.0	--	--	--
19	0900	--	--	77	20	6.0	--	--	--
26	0845	--	--	78	20	6.0	--	--	--
AUG.									
02...	0845	--	--	78	18	6.0	--	--	.2
09...	0915	--	--	78	17	6.0	--	--	--
16...	0915	--	--	78	20	10	--	--	--
23...	0900	--	--	78	13	5.0	--	--	--
30...	0845	--	--	78	20	6.0	--	--	--
SEPT.									
07...	0840	--	--	78	18	5.0	--	--	.3
13...	0915	--	--	78	13	8.0	--	--	--
20...	0945	--	--	79	15	7.0	--	--	--
27...	0915	--	--	78	20	6.0	--	--	--

04159130 ST. CLAIR RIVER AT PORT HURON, MICH.--Continued

CHEMICAL ANALYSES. WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL RESI-DUE (MG/L)	HARD-NESS (CA,MG) (MG/L)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
OCT.									
05...	.000	.000	--	--	--	99	206	8.3	15.0
12...	--	--	--	--	--	97	207	8.3	15.5
19...	--	--	--	--	--	94	208	8.3	13.8
26...	--	--	--	--	--	96	208	8.3	14.0
NOV.									
02...	.000	.000	--	--	--	96	211	8.3	11.5
09...	--	--	--	--	--	96	207	8.3	11.0
16...	--	--	--	--	--	96	212	8.3	8.3
23...	--	--	--	--	--	96	210	8.3	8.3
30...	--	--	--	--	--	96	208	8.3	7.0
DEC.									
07...	.10	.060	--	56	--	97	222	8.3	5.1
14...	--	--	--	--	--	92	210	8.3	3.9
21...	--	--	--	--	--	95	209	8.3	3.0
28...	--	--	--	--	--	96	209	8.3	1.5
JAN.									
04...	.000	.000	144	14	158	97	208	8.3	1.2
11...	--	--	--	--	--	94	209	8.3	1.1
18...	--	--	--	--	--	95	217	8.3	.1
25...	--	--	--	--	--	96	215	8.3	1.0
FEB.									
01...	.060	.010	--	--	--	96	222	8.3	.3
08...	--	--	--	--	--	96	210	8.3	.3
16...	--	--	--	--	--	96	230	8.3	.1
22...	--	--	--	--	--	97	215	8.3	.1
MAR.									
01...	.010	.010	124	10	134	97	214	8.3	.3
02...	.000	.000	136	0	136	--	207	--	--
08...	--	--	--	--	--	96	218	8.3	.1
12...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	97	211	8.3	.1
22...	--	--	--	--	--	96	215	8.3	1.0
29...	--	--	--	--	--	98	208	8.3	1.5
APR.									
05...	.000	.000	--	--	--	96	211	8.3	1.1
12...	--	--	--	--	--	97	213	8.3	.3
19...	--	--	--	--	--	97	217	8.3	.5
26...	--	--	--	--	--	98	217	8.3	5.5
MAY									
03...	.020	.000	--	--	--	96	220	8.3	6.1
10...	--	--	--	--	--	96	214	8.3	7.7
17...	--	--	--	--	--	96	218	8.3	8.0
24...	--	--	--	--	--	97	213	8.3	10.0
JUNE									
01...	--	--	--	--	--	97	216	8.3	12.0
07...	--	--	--	--	--	96	208	8.3	11.7
14...	--	--	--	--	--	96	207	8.3	14.0
21...	--	--	--	--	--	95	214	8.3	17.0
28...	.000	.000	110	28	138	95	211	8.3	19.0
JULY									
06...	--	--	--	--	--	95	209	8.3	19.0
12...	--	--	--	--	--	95	210	8.3	20.5
19...	--	--	--	--	--	94	214	8.3	20.0
26...	--	--	--	--	--	95	205	8.3	20.0
AUG.									
02...	.000	.000	--	--	--	95	206	8.3	19.0
09...	--	--	--	--	--	96	206	8.3	20.0
16...	--	--	--	--	--	95	207	8.3	21.1
23...	--	--	--	--	--	94	206	8.3	20.6
30...	--	--	--	--	--	95	206	8.3	20.0
SEPT.									
07...	.000	.000	--	0	128	95	205	8.3	20.0
13...	--	--	--	--	--	96	209	8.3	21.1
20...	--	--	--	--	--	95	206	8.2	19.8
27...	--	--	--	--	--	95	205	8.3	18.0

04159130 ST. CLAIR RIVER AT PORT HURON, MICH.--Continued

CHEMICAL ANALYSES. WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND (MG/L)	DELAYED COLIFORM (COLONIES PER 100 ML)	PHENOLS (UG/L)	CYANIDE (CN) (MG/L)	DISSOLVED SELENIUM (SE) (UG/L)
OCT.									
05...	0	2	9.9	100	.3	13	1	--	--
12...	0	1	9.9	101	1.1	35	--	--	--
19...	2	4	10.3	101	.1	48	--	--	--
26...	0	1	10.3	102	.5	41	--	--	--
NOV.									
02...	0	4	10.8	101	.2	26	1	--	--
09...	0	2	10.7	99	.3	13	--	--	--
16...	0	17	11.6	100	.5	25	--	--	--
23...	0	2	12.3	106	.2	26	--	--	--
30...	0	2	12.5	105	1.0	13	--	--	--
DEC.									
07...	28	56	12.9	104	.4	63	0	--	--
14...	7	14	13.0	100	.8	28	--	--	--
21...	0	4	13.2	101	1.2	10	--	--	--
28...	2	4	13.4	98	1.6	2	--	--	--
JAN.									
04...	0	1	13.8	100	1.6	0	0	.00	9
11...	0	1	14.0	101	1.8	0	--	--	--
18...	0	2	15.0	106	1.2	0	--	--	--
25...	0	1	14.6	106	.1	0	--	--	--
FEB.									
01...	2	4	14.7	104	.5	0	0	--	--
08...	0	2	15.2	107	.5	0	--	--	--
16...	0	2	15.1	106	2.8	0	--	--	--
22...	0	1	14.5	10	1.1	5	--	--	--
MAR.									
01...	0	1	14.2	100	1.1	0	1	--	--
02...	--	--	--	--	--	--	0	--	--
08...	0	2	14.3	101	1.1	2	--	--	--
12...	--	--	--	100	--	--	--	--	--
15...	0	2	14.2	100	.5	10	--	--	--
22...	0	1	14.1	102	.7	--	--	--	--
29...	0	1	14.1	104	1.0	1	--	--	--
APR.									
05...	0	1	14.2	103	1.2	1	6	--	--
12...	0	2	14.2	93	.3	1	--	--	--
19...	0	2	13.4	96	.9	17	--	--	--
26...	1	6	12.8	105	1.3	1	--	--	--
MAY									
03...	5	12	12.6	104	1.1	3	0	--	--
10...	0	2	13.2	113	1.2	2	--	--	--
17...	0	2	12.8	110	1.0	4	--	--	--
24...	0	1	12.4	113	.5	1	--	--	--
JUNE									
01...	1	6	11.5	110	1.0	41	--	--	--
07...	0	2	12.6	119	9.5	--	--	--	--
14...	0	2	11.3	112	.2	11	--	--	--
21...	0	1	10.7	114	1.2	31	--	--	--
28...	0	2	10.4	114	.6	21	4	.01	1
JULY									
06...	0	1	9.8	100	.7	63	--	--	--
12...	4	10	10.7	120	1.1	47	--	--	--
19...	0	1	9.4	104	.6	110	--	--	--
26...	0	2	9.3	103	.2	B23	--	--	--
AUG.									
02...	0	1	9.8	100	.1	B17	2	--	--
09...	0	1	9.2	102	--	B26	--	--	--
16...	2	6	10.7	122	1.0	B34	--	--	--
23...	12	25	8.5	96	8.9	B49	--	--	--
30...	0	2	9.6	107	9.3	B39	--	--	--
SEPT.									
07...	0	1	8.9	99	--	B130	3	--	--
13...	6	13	9.0	102	.5	B59	--	--	--
20...	0	1	9.2	101	.4	B28	--	--	--
27...	0	2	9.4	101	.2	B27	--	--	--

04160900 CLINTON RIVER NEAR DRAYTON PLAINS, MICH.

LOCATION.--Lat 42°39'37", long 83°23'25", in NE¼ sec.21, T.3 N., R.9 E., Oakland County, temperature recorder at gaging station on left bank, 14 ft downstream from bridge on State Highway 59, 1 mile downstream from State fish hatchery, and 2.0 miles south of Drayton Plains.

DRAINAGE AREA.--79.2 sq mi.

PERIOD OF RECORD.--Water temperatures: October 1961 to April 1967, August 1968 to September 1971.

EXTREMES, 1970 to 71:
Water temperatures: Maximum recorded, 29.5°C June 28, 30, 1971.

PERIOD OF RECORD.--1961 to 70.

REMARKS.--No temperature record for January, February, April, and May 1971.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.0	14.0	13.0	11.5	---	---	---	---	---	---	4.5	3.5
2	16.0	14.5	12.0	11.5	---	---	---	---	---	---	4.5	4.0
3	15.5	13.5	11.5	11.5	---	---	---	---	---	---	4.5	4.0
4	14.5	12.0	11.5	10.5	---	---	---	---	---	---	4.5	3.5
5	15.0	14.0	10.5	10.5	---	---	---	---	---	---	5.0	4.0
6	16.5	14.0	11.0	10.5	---	---	---	---	---	---	4.5	4.5
7	16.0	14.5	11.0	10.0	---	---	---	---	---	---	4.5	4.0
8	16.5	15.0	11.5	10.0	---	---	---	---	---	---	4.0	3.5
9	17.0	15.5	11.0	10.5	---	---	---	---	---	---	4.5	3.5
10	17.0	15.0	11.0	10.5	---	---	---	---	---	---	4.5	3.5
11	15.5	13.5	10.5	10.5	---	---	---	---	---	---	5.0	3.5
12	15.0	14.5	10.5	10.5	---	---	---	---	---	---	4.5	4.0
13	15.0	14.5	10.5	9.5	---	---	---	---	---	---	5.0	4.0
14	15.5	15.0	9.5	8.5	---	---	---	---	---	---	5.0	3.5
15	14.5	13.0	8.0	8.0	---	---	---	---	---	---	5.0	4.0
16	13.5	11.5	---	---	---	---	---	---	---	---	4.0	4.0
17	13.5	11.0	---	---	---	---	---	---	---	---	4.5	4.0
18	13.5	11.0	---	---	3.0	3.0	---	---	---	---	4.0	4.0
19	13.5	12.0	---	---	3.0	3.0	---	---	---	---	4.0	4.0
20	13.0	12.0	---	---	3.0	3.0	---	---	---	---	4.0	4.0
21	13.5	12.0	---	---	3.0	3.0	---	---	---	---	4.0	4.0
22	13.0	12.0	---	---	3.0	3.0	---	---	---	---	4.5	4.0
23	13.0	12.0	---	---	3.0	3.0	---	---	---	---	4.5	4.0
24	14.0	13.0	---	---	3.0	2.0	---	---	---	---	---	---
25	14.0	13.0	---	---	3.0	2.0	---	---	---	---	---	---
26	13.0	12.0	---	---	3.0	2.0	---	---	4.5	4.0	---	---
27	13.5	13.0	---	---	---	---	---	---	4.5	4.0	---	---
28	13.0	12.0	---	---	---	---	---	---	4.0	3.5	---	---
29	12.0	12.0	---	---	---	---	---	---	---	---	---	---
30	14.0	11.5	---	---	---	---	---	---	---	---	---	---
31	13.5	11.5	---	---	---	---	---	---	---	---	---	---
MONTH	17.0	11.0	---	---	---	---	---	---	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	---	---	---	---	28.5	26.0	25.0	18.5	23.5	19.0
2	---	---	---	---	---	---	27.0	23.5	26.0	20.0	24.5	20.5
3	---	---	---	---	---	---	27.0	21.5	26.0	21.5	24.5	21.5
4	---	---	---	---	---	---	26.5	22.0	23.0	19.5	25.5	22.0
5	---	---	---	---	---	---	26.5	23.5	25.0	19.0	27.0	22.0
6	---	---	---	---	---	---	28.5	22.0	26.0	19.0	26.5	23.5
7	---	---	---	---	---	---	28.0	23.0	27.0	21.0	26.5	22.0
8	---	---	---	---	---	---	27.0	23.5	28.0	23.0	27.0	23.0
9	---	---	---	---	---	---	28.0	24.0	28.0	22.0	26.5	23.0
10	---	---	---	---	---	---	28.0	24.0	28.0	24.0	25.5	21.5
11	---	---	19.5	18.0	---	---	27.0	23.0	28.0	23.0	24.5	20.5
12	---	---	18.5	16.5	---	---	26.5	21.5	25.0	19.0	21.5	20.0
13	---	---	19.5	14.0	---	---	26.0	21.5	26.5	20.0	20.5	19.0
14	---	---	20.5	15.0	---	---	25.5	20.5	26.5	22.0	23.5	18.0
15	---	---	21.5	16.0	---	---	25.0	20.5	26.5	21.0	23.0	20.0
16	---	---	21.0	18.0	---	---	26.0	20.0	25.0	19.0	21.0	18.5
17	---	---	22.0	17.0	26.0	23.0	25.5	21.0	27.0	20.0	21.5	18.5
18	---	---	23.0	19.5	26.0	22.0	26.0	19.5	28.0	21.5	20.5	17.0
19	---	---	24.0	20.5	26.5	23.5	25.5	21.0	27.0	22.0	19.0	17.0
20	---	---	22.0	19.0	27.0	24.5	25.0	18.0	26.5	23.0	18.5	16.5
21	---	---	20.0	17.0	26.5	24.0	26.0	20.0	27.0	23.5	20.0	15.0
22	---	---	---	---	25.5	21.5	26.0	21.0	26.5	22.0	19.5	15.0
23	4.5	4.0	---	---	25.0	23.0	25.5	22.0	25.5	20.0	19.0	15.5
24	---	---	---	---	26.0	23.5	25.5	21.5	23.5	19.5	18.0	13.5
25	---	---	---	---	27.0	24.5	25.5	21.0	25.5	20.5	18.0	13.5
26	---	---	---	---	26.0	23.5	25.5	22.0	25.5	21.0	14.5	14.0
27	---	---	---	---	28.5	23.5	23.5	19.0	22.0	19.5	16.0	14.5
28	---	---	---	---	29.5	25.0	23.5	19.0	23.0	19.5	20.5	16.5
29	---	---	---	---	29.0	25.5	24.0	18.5	25.5	19.0	21.0	19.0
30	---	---	---	---	29.5	26.0	24.5	20.5	26.0	20.0	21.0	20.0
31	---	---	---	---	---	---	23.0	19.5	24.5	20.5	---	---
MONTH	---	---	---	---	---	---	28.5	18.0	28.0	18.5	27.0	-17.0
YEAR	29.5	-17.0										

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

04165700 DETROIT RIVER AT DETROIT, MICH.

LOCATION.--Lat 42°20'50", long 82°57'31", in T.2 S., R.13 E., Wayne County, at Detroit municipal raw-water intake at Water Works Park at Detroit.

DRAINAGE AREA.--228,800 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1971.

REMARKS.--Station operated as part of the Environmental Protection Agency (EPA) national network. Weekly chemical analyses furnished by the City of Detroit Water Department. Radio-chemical and trace element analyses by the EPA. Station operated by the former Federal Water Quality Administration (now EPA) during the period November 1957 to September 1969. No discharge records available. **Additional analyses on page 125.**

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT.										
05...	0800	--	--	80	15	10	--	--	.2	.000
12...	0745	--	--	80	15	9.0	--	--	--	--
19...	0800	--	--	80	16	7.0	--	--	--	--
26...	0800	--	--	81	15	10	--	--	--	--
NOV.										
02...	0830	--	--	80	17	8.0	--	--	.2	.000
09...	0825	--	--	79	17	8.0	--	--	--	--
16...	0800	--	--	80	16	8.0	--	--	--	--
23...	0800	--	--	80	16	9.0	--	--	--	--
30...	0800	--	--	79	16	9.0	--	--	--	--
DEC.										
07...	0750	--	--	79	16	9.0	--	--	.3	.37
14...	0800	--	--	81	17	8.0	--	--	--	--
21...	0800	--	--	78	16	7.0	--	--	--	--
28...	0900	--	--	81	17	9.0	--	--	--	--
JAN.										
04...	0800	4.0	1.0	--	--	--	.00	.02	.3	.030
11...	0800	--	--	79	17	8.0	--	--	--	--
18...	0730	--	--	76	17	9.0	--	--	--	--
25...	0850	--	--	81	17	9.0	--	--	--	--
FEB.										
01...	0800	--	--	81	17	9.0	--	--	.2	.080
08...	0800	--	--	85	19	9.0	--	--	--	--
15...	--	--	--	80	17	8.0	--	--	--	--
22...	0900	--	--	83	18	10	--	--	--	--
MAR.										
01...	0745	--	--	79	16	8.0	.09	.00	.3	.12
08...	0800	--	--	80	17	9.0	--	--	--	--
22...	0800	--	--	--	--	--	--	--	--	--
29...	0745	--	--	78	13	8.0	--	--	--	--
APR.										
05...	0800	--	--	79	14	9.0	--	--	.3	.000
12...	0830	--	--	79	15	8.0	--	--	--	--
19...	0800	--	--	80	16	9.0	--	--	--	--
26...	0745	--	--	81	16	7.0	--	--	--	--
MAY										
03...	0800	--	--	81	16	7.0	--	--	.2	.010
10...	0800	--	--	81	17	8.0	--	--	--	--
17...	1015	--	--	81	16	9.0	--	--	--	--
24...	0740	--	--	81	16	9.0	--	--	--	--
JUNE										
01...	0800	--	--	80	15	8.0	--	--	--	--
07...	--	--	--	81	15	8.0	--	--	--	--
15...	0830	--	--	81	16	10	--	--	--	--
28...	0800	4.3	.5	80	16	8.0	.02	.02	.2	.010
JULY										
06...	0800	--	--	78	15	10	--	--	--	--
12...	0800	--	--	79	16	10	--	--	--	--
19...	0740	--	--	79	16	8.0	--	--	--	--
AUG.										
02...	0830	--	--	81	16	9.0	--	--	.2	.000
09...	0830	--	--	79	15	8.0	--	--	--	--
23...	0800	--	--	79	15	7.0	--	--	--	--
30...	0800	--	--	79	15	9.0	--	--	--	--
SEP.										
07...	0800	--	--	79	14	9.0	.05	.00	.2	.010
13...	0830	--	--	79	15	9.0	--	--	--	--
20...	0800	--	--	80	15	7.0	--	--	--	--
27...	0800	--	--	80	19	7.0	--	--	--	--

04165700 DETROIT RIVER AT DETROIT, MICH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL RESI-DUE (MG/L)	HARD-NESS (CA,MG) (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)
OCT.										
05...	.000	--	139	4	--	97	219	8.1	16.8	0
12...	--	--	134	13	--	97	217	8.2	17.0	0
19...	--	--	133	7	--	97	217	8.2	14.6	0
26...	--	--	132	8	--	99	216	7.9	15.5	0
NOV.										
02...	.000	--	135	6	--	97	222	8.2	14.6	0
09...	--	--	132	6	--	98	218	8.2	13.0	0
16...	--	--	133	14	--	96	211	8.2	11.3	0
23...	--	--	127	11	--	97	219	8.1	10.0	0
30...	--	--	123	5	--	96	217	--	8.0	0
DEC.										
07...	.14	--	126	25	--	97	222	8.2	7.3	0
14...	--	--	108	28	--	99	225	8.2	6.2	0
21...	--	--	119	14	--	96	216	8.1	5.0	0
29...	--	--	129	5	--	100	225	8.1	3.1	0
JAN.										
04...	.030	148	166	19	--	--	214	--	--	--
11...	--	--	129	2	--	98	222	8.2	4.0	0
18...	--	--	125	2	--	95	220	8.2	4.0	0
25...	--	--	126	0	--	100	228	8.2	3.7	0
FEB.										
01...	.080	--	119	2	--	100	225	8.3	2.6	0
08...	--	--	126	3	--	104	230	8.1	3.0	0
15...	--	--	124	2	--	97	217	8.2	2.8	0
22...	--	--	122	2	--	101	227	8.3	3.0	0
MAR.										
01...	.000	132	146	14	--	97	215	8.2	3.0	0
09...	--	--	123	4	--	99	225	8.1	2.8	0
22...	--	--	--	--	--	--	214	--	--	--
29...	--	--	118	6	--	96	223	8.1	3.2	0
APR.										
05...	.000	118	121	8	--	97	220	8.2	4.8	0
12...	--	--	121	10	--	94	219	8.1	4.9	0
19...	--	--	122	3	--	99	--	8.2	8.1	0
26...	--	--	121	10	--	99	229	8.2	8.6	0
MAY										
03...	.000	--	108	9	--	96	218	8.2	8.9	0
10...	--	--	116	4	--	99	221	8.2	12.0	0
17...	--	--	119	3	--	97	217	8.3	13.0	0
24...	--	--	120	4	--	98	222	8.2	13.0	0
JUNE										
01...	--	--	126	7	--	96	216	8.2	14.1	0
07...	--	--	126	5	--	96	217	8.1	17.0	0
15...	--	--	144	3	--	96	217	8.2	17.0	0
28...	.000	120	111	12	158	97	216	8.3	22.0	0
JULY										
06...	--	--	129	9	--	96	221	8.1	22.3	0
12...	--	--	121	8	--	96	217	8.6	22.8	0
19...	--	--	131	4	--	97	215	8.3	22.0	0
AUG.										
02...	.000	--	122	13	--	99	208	8.2	22.0	0
09...	--	--	129	5	--	96	212	8.3	22.0	0
23...	--	--	122	12	--	97	211	8.2	22.0	0
30...	--	--	125	9	--	96	214	8.0	22.8	0
SEP.										
07...	.010	121	135	1	134	96	215	8.2	24.0	0
13...	--	--	134	5	--	98	210	8.2	23.2	0
20...	--	--	125	10	--	100	216	8.1	20.4	0
27...	--	--	126	7	--	97	218	8.1	19.4	0

04165700 DETROIT RIVER AT DETROIT, MICH.--Continued

CHEMICAL ANALYSES. WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	CHEM-ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	DELAYED COLI-FORM (COL-ONIES PER 100 ML)	PHENOLS (UG/L)	CYANIDE (CN) (MG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)
OCT.									
05...	15	9.4	100	11	.4	14	3	--	--
12...	15	8.7	93	11	.2	17	--	--	--
19...	10	9.5	95	9	--	9	--	--	--
26...	10	9.1	93	11	.2	17	--	--	--
NOV.									
02...	10	10.1	101	19	.9	18	0	--	--
09...	15	10.6	103	11	.5	13	--	--	--
16...	30	11.4	106	10	.7	26	--	--	--
23...	30	11.9	109	10	1.2	34	--	--	--
30...	15	12.3	106	10	3.3	62	--	--	--
DEC.									
07...	45	12.7	107	11	.5	31	0	--	--
14...	50	13.3	110	10	.4	3	--	--	--
21...	15	13.6	108	14	--	20	--	--	--
29...	10	13.9	105	14	1.3	26	--	--	--
JAN.									
04...	2	--	--	--	--	--	0	.00	11
11...	3	14.1	111	13	.6	0	--	--	--
18...	3	13.8	109	14	.2	0	--	--	--
25...	1	14.1	112	14	.8	1	--	--	--
FEB.									
01...	2	14.6	111	11	1.2	0	2	--	--
08...	7	14.5	111	22	.7	4	--	--	--
15...	4	14.2	108	18	.5	--	--	--	--
22...	2	14.3	109	22	3.5	0	--	--	--
MAR.									
01...	5	13.8	105	14	.6	0	0	--	--
08...	7	14.1	108	18	--	0	--	--	--
22...	--	--	--	--	--	0	--	--	--
29...	9	13.1	100	14	2.1	0	--	--	--
APR.									
05...	10	13.3	106	10	.5	0	7	--	--
12...	7	13.2	106	11	.4	0	--	--	--
19...	7	13.0	112	16	2.5	0	--	--	--
26...	15	11.7	102	13	.4	--	--	--	--
MAY									
03...	10	12.4	108	13	--	1	3	--	--
10...	10	11.8	112	11	1.3	1	--	--	--
17...	10	11.4	111	14	1.5	49	--	--	--
24...	10	11.0	107	11	.8	12	--	--	--
JUNE									
01...	10	11.2	111	--	1.6	14	--	--	--
07...	10	10.4	111	10	.8	--	--	--	--
15...	10	10.4	111	20	.9	11	--	--	--
28...	15	11.0	129	13	--	88	3	.02	2
JULY									
06...	9	9.5	100	12	.5	100	--	--	--
12...	10	9.5	101	14	1.6	47	--	--	--
19...	15	8.0	94	10	.5	160	--	--	--
AUG.									
02...	15	9.3	98	10	.4	11	0	--	--
09...	15	9.9	116	13	1.2	35	--	--	--
23...	10	9.0	96	9	.8	8	--	--	--
30...	10	9.0	95	8	.6	17	--	--	--
SEP.									
07...	8	7.8	95	13	.4	26	5	--	--
13...	10	7.8	93	10	.2	125	--	--	--
20...	15	8.3	93	10	.4	16	--	--	--
27...	15	8.6	94	7	.5	13	--	--	--

04168640 DETROIT RIVER AT TRENTON, MICH.

LOCATION.--Lat 42°07'37", long 83°10'35", in SE1/4 sec.19, T.4 S., R.11 E., Wayne County, at Grosse Isle Parkway Bridge over Trenton Channel of the Detroit River, at Trenton.

PERIOD OF RECORD.--Chemical analyses: Oct. 1970 to Sept. 1971.

REMARKS.--*Station operated as part of the Environmental Protection Agency (EPA) national network.* Biweekly chemical analyses furnished by Michigan District Office, EPA. Station replaces 04168650, Detroit River at Gibralter, Mich., which was operated by the former Federal Water Quality Administration (now EPA) during the period October 1961 to November 1969. No discharge records available.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	NITRATE (N) (MG/L)
DEC.									
07...	1045	--	--	82	--	--	--	--	.20
21...	1235	--	--	85	20	26	--	--	.30
JAN.									
04...	1130	1.3	--	86	18	22	.00	.22	.40
18...	0920	--	--	84	14	14	--	--	--
FEB.									
02...	1030	--	--	86	19	27	--	--	.30
16...	1022	--	--	84	16	20	--	--	--
MAR.									
02...	1335	--	--	76	17	19	--	--	--
15...	1200	--	--	83	20	23	--	--	--
29...	1000	--	--	84	22	21	.39	.13	.50
APR.									
12...	1300	--	--	75	13	16	--	--	--
25...	1030	--	--	76	13	13	--	--	--
MAY									
10...	1000	--	--	77	14	14	--	--	1.0
24...	1035	--	--	79	13	16	--	--	--
JUNE									
07...	0900	--	--	76	14	14	.23	.09	.10
21...	1030	--	--	77	14	14	--	--	--
JULY									
06...	1015	10	1.2	76	17	18	.00	.06	.20
19...	0910	--	--	77	14	10	--	--	--
AUG.									
02...	1000	--	--	77	19	16	--	--	.20
16...	0940	--	--	76	14	16	--	--	--
30...	1025	--	--	76	15	16	--	--	--
SEPT.									
13...	0900	--	--	78	17	16	.10	.05	.10
27...	0900	--	--	80	18	18	--	--	--

DATE	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	TOTAL FILTRABLE RESIDUE (MG/L)	TOTAL NON-FILTRABLE RESIDUE (MG/L)	TOTAL RESIDUE (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)
DEC.									
07...	.450	.140	--	--	--	--	100	260	7.3
21...	.210	.100	188	--	0	188	118	302	7.4
JAN.									
04...	.050	.050	192	150	7	160	100	260	7.6
18...	--	--	--	150	6	150	110	240	8.1
FEB.									
02...	.160	.160	--	170	12	180	110	290	7.7
16...	--	--	--	120	8	120	110	260	7.5
MAR.									
02...	--	--	--	180	11	190	100	270	7.1
15...	--	--	--	160	11	170	100	290	7.5
29...	.160	.130	140	160	20	180	110	290	7.9
APR.									
12...	--	--	--	150	12	160	100	260	7.9
25...	--	--	--	130	12	140	100	240	8.0
MAY									
10...	.090	.010	--	150	18	170	100	240	8.1
24...	--	--	--	160	11	170	100	260	8.0
JUNE									
07...	--	--	--	150	2	150	100	260	7.8
21...	--	--	--	140	13	160	100	230	8.1
JULY									
06...	.090	.040	122	150	13	170	100	260	8.0
19...	--	--	--	140	10	150	120	240	8.2
AUG.									
02...	--	--	--	150	16	130	98	230	7.8
16...	--	--	--	160	14	150			
30...	--	--	--	170	12	160	100	260	8.0
SEPT.									
13...	.180	.110	--	150	11	160	100	230	8.1
27...	--	--	--	150	14	160	110	270	8.3

04168640 DETROIT RIVER AT TRENTON, MICH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TEMP-ERATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	CHEM-ICAL OXYGEN DEMAND (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)	PHENOLS (UG/L)	CYANIDE (CN) (MG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)
DEC.									
07...	--	10	11.6	88	--	260	--	--	--
21...	--	5.0	--	--	--	B6	--	--	--
JAN.									
04...	.5	4.0	13.7	--	--	330	5	00	27
18...	.5	2.0	13.9	--	--	B0	--	--	--
FEB.									
02...	.0	6.0	14.3	--	10	B0	18	--	--
16...	.5	4.0	13.8	--	3.0	B19	--	--	--
MAR.									
02...	.5	6.0	13.1	--	14	82	--	---	--
15...	.5	4.0	13.6	--	9.0	B12	--	--	--
29...	2.0	10	14.0	--	10	B12	11	--	--
APR.									
12...	5.5	10	13.4	--	11	B12	--	--	--
25...	8.5	5.0	10.0	--	8.0	B19	--	--	--
MAY									
10...	13.0	6.0	12.0	--	12	1400	1	--	--
24...	14.0	5.0	10.3	--	14	B0	--	--	--
JUNE									
07...	16.5	6.0	8.6	--	9.0	1800	4	--	--
21...	19.5	4.0	9.0	--	9.0	--	--	--	--
JULY									
06...	19.0	6.0	7.9	--	7.0	96000	7	.00	5
19...	21.0	8.0	8.2	93	1.0	--	--	--	--
AUG.									
02...	22.0	7.0	9.8	114	7.0	700	3	--	--
16...	21.5	6.0	8.0	89	21	570	--	--	--
30...			8.2	93	--	15900	--	--	--
SEPT.									
13...	20.0	7.0	7.8	87	7	1400	4	--	--
27...	17.0	7.0	8.8	93	13	110	--	--	--

04176500 RIVER RAISIN NEAR MONROE, MICH.
(International Hydrological Decade River Station)

LOCATION.--Lat 41°57'40", long 83°31'55", Monroe County, at bridge on Ida Maybee Road, 0.8 mile upstream from gaging station, 4.2 miles downstream from Saline River and 8.3 miles west of Monroe.

DRAINAGE AREA.--1,042 sq mi (at gaging station).

PERIOD OF RECORD.--Water temperatures: March 1966 to September 1967, water years 1968-69 (partial-record station) October 1969 to September 1971.

Sediment records: March 1966 to September 1971.

EXTREMES.--1970-71:

Water temperatures: Maximum, 31.0°C June 29, 30, July 7; minimum, freezing point on several days during December to February.

Sediment concentrations: Maximum daily, 449 mg/l Feb. 27; minimum daily, 2 mg/l Jan. 8, 14.

Sediment discharges: Maximum daily, 5,640 tons Feb. 21; minimum daily, 0.29 ton Aug. 31.

Period of record:

Water temperatures (1966-67, 1969-71): Maximum, 31.0°C Aug. 13, 1970, June 29, 30, July 7, 1971; minimum, freezing point on several days in 1967, 1970 and 1971.

Sediment concentrations: Maximum daily, 1,430 mg/l Dec. 22, 1967; minimum daily, 1 mg/l on several days in 1969 and 1970.

Sediment discharges: Maximum daily, 28,000 tons Dec. 22, 1967; minimum daily, 0.29 ton Aug. 31, 1971.

REMARKS.--Flow affected by ice Dec. 22 to Feb. 22, Feb. 27.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(ONCE-DAILY MEASUREMENT BETWEEN 1300 AND 1800)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	15.0	9.0	1.0	---	2.0	---	13.0	21.0	30.0	23.0	27.0
2	16.5	14.5	9.5	1.5	---	1.5	7.0	13.0	22.0	29.0	24.0	28.0
3	15.0	13.0	7.0	2.0	0.0	1.0	6.5	---	24.0	28.0	25.0	29.0
4	15.5	12.0	5.5	---	0.5	1.5	5.5	14.0	24.0	27.0	27.0	27.0
5	17.5	11.0	5.0	1.0	1.0	2.0	6.0	14.5	25.0	25.0	26.0	27.0
6	19.0	11.5	2.0	---	---	2.0	7.0	---	25.0	29.0	27.0	26.0
7	19.0	12.0	2.5	0.0	1.0	1.5	8.0	15.0	26.0	31.0	28.0	28.0
8	19.0	11.5	3.0	0.5	---	---	9.0	17.0	21.0	30.0	29.0	27.0
9	20.5	12.0	5.0	1.0	---	---	---	17.0	22.0	30.0	28.0	26.0
10	19.0	12.0	3.5	---	---	2.0	11.0	18.0	21.0	29.0	27.0	---
11	18.0	12.0	4.0	2.0	0.5	2.0	---	17.0	22.0	28.0	26.0	27.0
12	17.5	12.5	2.5	1.5	1.0	2.5	---	16.0	24.0	28.0	26.0	25.0
13	19.5	12.0	3.5	1.5	---	3.0	11.0	17.0	26.0	29.0	27.0	26.0
14	18.0	10.5	3.0	2.0	---	---	---	18.0	26.0	28.0	28.0	24.0
15	17.5	9.0	1.5	1.0	1.5	6.0	12.0	20.0	25.0	29.0	24.0	25.0
16	15.5	9.0	2.0	0.5	2.5	5.0	12.0	20.0	25.0	26.0	25.0	24.0
17	14.5	8.5	3.0	0.0	---	3.0	13.0	21.0	26.0	27.0	24.0	23.0
18	13.5	8.5	2.0	0.0	---	3.5	14.0	20.0	27.0	28.0	26.0	21.0
19	14.5	8.5	2.5	0.0	---	4.0	14.5	22.0	29.0	26.0	28.0	22.0
20	14.0	8.5	2.0	0.5	2.0	3.0	15.0	22.0	28.0	25.0	27.0	23.0
21	14.5	8.0	1.5	1.0	1.5	---	14.0	21.0	29.0	26.0	29.0	25.0
22	15.0	7.5	2.0	1.0	0.5	5.0	14.0	20.0	28.0	25.0	29.0	24.0
23	15.0	2.0	2.5	1.0	1.5	3.0	13.0	19.0	27.0	26.0	26.0	22.0
24	15.0	1.5	1.5	1.5	---	4.0	12.0	20.0	29.0	25.0	29.0	21.0
25	15.5	0.5	1.0	2.0	1.5	4.5	13.0	20.0	28.0	26.0	28.0	20.0
26	15.0	5.0	1.5	---	2.0	---	12.0	18.0	29.0	25.0	27.0	21.0
27	15.5	5.0	1.0	1.0	2.0	5.5	11.5	17.0	30.0	24.0	27.0	22.0
28	15.5	4.0	0.5	---	2.0	6.0	11.0	18.0	30.0	25.0	28.0	23.0
29	15.5	3.0	0.0	0.5	---	5.0	12.0	19.0	31.0	23.0	29.0	22.0
30	15.5	5.5	0.0	---	---	5.5	13.0	20.0	31.0	22.0	28.0	22.0
31	15.0	---	0.5	---	---	7.0	---	20.0	---	21.0	28.0	---
MONTH	16.5	9.0	3.0	---	---	3.5	11.0	18.0	26.0	27.0	27.0	24.5
YEAR	15.0											

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	WATER TEMPERATURE (°C)	DISCHARGE (CFS)	CONCENTRATION (MG/L)	SUSPENDED SEDIMENT DISCHARGE (TONS/DAY)	PARTICLE SIZE PERCENT FINER THAN THE SIZE (IN MILLIMETERS) INDICATED										
						.002	.004	.008	.016	.031	.062	.125	.250	.500	1.00	2.00
Feb.20, 1971	1700	2.0	4060	487	5340	50	64	71	77	88	95	100	--	--	--	--
Mar. 15.....	1315	6.0	2440	494	3250	58	66	81	90	96	100	--	--	--	--	--

04176500 RIVER RAISIN NEAR MONROE, MICH.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	195	23	12	311	27	23	1400	91	344
2	207	29	16	356	28	27	1460	113	445
3	207	34	19	365	22	22	1370	84	311
4	178	29	14	342	23	21	1170	59	186
5	154	28	12	333	22	20	976	39	103
6	147	23	9.1	320	20	17	826	25	56
7	141	21	8.0	303	21	17	742	18	36
8	138	26	9.7	295	18	14	616	14	23
9	138	25	11	287	21	16	550	13	19
10	141	32	12	295	26	21	500	15	20
11	141	32	12	295	28	22	485	13	17
12	174	32	15	311	24	20	570	21	32
13	203	25	14	365	18	18	580	14	22
14	231	26	16	390	9	9.5	622	8	13
15	299	40	32	365	4	3.9	605	10	16
16	395	33	35	338	5	4.6	580	10	16
17	475	27	35	324	4	3.5	545	9	13
18	495	28	37	307	3	2.5	545	26	38
19	440	30	36	303	3	2.5	575	54	84
20	370	31	31	320	7	6.0	892	59	142
21	324	27	24	338	8	7.3	976	24	63
22	299	24	19	415	8	9.0	950	24	62
23	295	25	20	515	6	8.3	850	22	50
24	295	26	21	550	14	21	700	20	38
25	287	28	22	490	13	17	600	25	41
26	279	28	21	395	16	17	500	14	19
27	267	33	24	375	20	20	470	8	10
28	263	35	25	510	20	28	420	8	9.1
29	267	33	24	748	37	75	390	10	11
30	271	29	21	1190	61	196	370	7	7.0
31	275	27	20	--	--	--	350	7	6.6
TOTAL	7991	--	626.6	12051	--	689.1	22185	--	2252.7

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	330	6	5.3	200	10	5.4	3070	165	1370
2	320	4	3.5	200	10	5.4	2650	108	773
3	310	5	4.2	200	10	5.4	2120	53	303
4	300	4	3.2	250	40	27	1620	42	184
5	300	3	2.4	350	52	49	1220	27	89
6	290	3	2.3	600	38	62	1050	24	68
7	280	3	2.3	1000	17	46	1280	32	111
8	270	2	1.5	1100	25	74	1300	35	123
9	270	4	2.9	1200	38	123	1250	34	115
10	260	3	2.1	1300	33	116	1100	25	74
11	260	4	2.8	1200	23	75	955	16	41
12	250	5	3.4	1000	19	51	892	14	34
13	240	3	1.9	900	17	41	850	70	161
14	240	2	1.3	800	14	30	1130	91	278
15	230	5	3.1	750	11	22	2390	412	2660
16	220	6	3.6	700	7	13	2830	200	1530
17	220	7	4.2	680	5	9.2	2900	160	1250
18	220	7	4.2	680	12	22	2760	127	946
19	210	7	4.0	700	156	316	2410	74	482
20	210	6	3.4	3000	423	3430	2070	58	324
21	200	7	3.8	5000	418	5640	1660	56	251
22	200	7	3.8	4800	175	2270	1460	39	154
23	200	5	2.7	5440	144	2120	1330	25	90
24	200	7	3.8	4660	153	1930	1210	20	65
25	200	14	7.6	3660	122	1210	1100	24	71
26	190	14	7.2	3580	78	754	998	17	46
27	190	8	4.1	3500	449	4240	927	21	53
28	190	13	6.7	3250	282	2470	895	19	46
29	190	11	5.6	--	--	--	920	13	32
30	190	10	5.1	--	--	--	913	14	35
31	190	10	5.1	--	--	--	892	19	46
TOTAL	7370	--	117.1	50700	--	25156.4	48156	--	11805

04176500 RIVER RAISIN NEAR MONROE, MICH.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971--Continued

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	985	9	22	283	32	24	185	23	11
2	990	13	35	271	23	17	195	15	7.9
3	1040	13	37	263	22	16	195	11	5.8
4	998	13	35	263	32	23	255	15	10
5	920	19	47	263	29	21	279	19	14
6	838	17	38	311	25	21	275	24	18
7	766	13	27	295	27	22	283	23	18
8	706	15	29	329	28	25	295	23	18
9	646	16	28	333	9	8.1	342	11	10
10	605	15	25	329	24	21	307	34	28
11	570	12	18	329	30	27	283	31	24
12	540	17	25	320	37	32	271	24	18
13	535	17	25	303	33	27	255	23	16
14	535	18	26	275	23	17	243	24	16
15	505	18	25	263	26	18	271	20	15
16	545	10	15	251	37	25	231	21	13
17	535	16	23	231	22	14	199	22	12
18	505	20	27	219	15	8.9	174	22	10
19	480	20	26	211	23	13	150	24	9.7
20	440	12	14	223	18	11	138	25	9.3
21	425	16	18	207	17	9.5	120	23	7.5
22	410	19	21	195	17	9.0	111	15	4.5
23	380	17	17	185	19	9.5	114	12	3.7
24	360	21	20	181	13	6.4	117	19	6.0
25	342	15	14	199	15	8.1	106	22	6.3
26	324	35	31	207	20	11	98	19	5.0
27	315	33	28	263	19	13	98	17	4.5
28	311	25	21	267	25	18	94	14	3.6
29	295	19	15	239	20	13	90	12	2.9
30	287	29	22	219	17	10	92	14	3.5
31	--	--	--	203	21	12	--	--	--
TOTAL	17033	--	754	7930	--	510.5	5866	--	331.2

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	88	23	5.5	64	15	2.6	36	4	.39
2	78	22	4.6	62	15	2.5	36	5	.49
3	74	18	3.6	60	9	1.5	35	4	.38
4	72	16	3.1	56	9	1.4	37	8	.80
5	76	12	2.5	52	7	.98	39	8	.84
6	74	12	2.4	52	6	.84	44	18	2.1
7	70	13	2.5	52	9	1.3	50	19	2.6
8	76	13	2.7	48	10	1.3	58	21	3.3
9	82	11	2.4	46	10	1.2	54	16	2.3
10	78	13	2.7	52	14	2.0	54	17	2.5
11	74	15	3.0	56	12	1.8	52	13	1.8
12	72	14	2.7	52	12	1.7	46	9	1.1
13	72	14	2.7	54	13	1.9	44	10	1.2
14	68	14	2.6	66	13	2.3	42	11	1.2
15	66	16	2.9	66	17	3.0	40	19	2.1
16	70	13	2.5	56	22	3.3	40	26	2.8
17	68	10	1.8	50	12	1.6	50	22	3.0
18	74	10	2.0	44	11	1.3	46	18	2.2
19	82	10	2.2	44	7	.83	42	33	3.7
20	76	9	1.8	50	6	.81	56	39	5.9
21	80	28	6.0	50	8	1.1	60	34	5.5
22	88	17	4.0	54	10	1.5	66	33	5.9
23	46	15	1.9	48	10	1.3	80	33	7.1
24	64	12	2.1	42	7	.79	82	37	8.2
25	66	8	1.4	39	5	.53	74	34	6.8
26	62	5	.84	37	5	.50	72	25	4.9
27	66	5	.89	42	8	.91	84	23	5.2
28	68	11	2.0	48	4	.52	86	24	5.6
29	68	12	2.2	40	6	.65	103	16	4.4
30	64	13	2.2	37	4	.40	106	14	4.0
31	66	13	2.3	36	3	.29	--	--	--
TOTAL	2228	--	82.03	1555	--	42.65	1714	--	98.30

TOTAL DISCHARGE FOR YEAR (CFS-DAYS)	184779
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS)	42465.78

04184500 BEAN CREEK AT POWERS, OHIO

LOCATION.--Lat 41°40'39", long 84°13'56", in NE1/4 sec.24, T.9 S., R.1 E., Fulton County, at gaging station on right bank at downstream side of bridge on U.S. Highway 20, 1 mile east of Powers, 2.2 miles upstream from Iron Creek, 3 miles downstream from Silver Creek, and 5.2 miles east of Fayette.

DRAINAGE AREA.--206 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1971.

REMARKS.--Samples collected monthly as part of the Environmental Protection Agency national network. Data prefaced by the letter "E" are estimates based on field analyses.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT. 07...	1530	25	--	E25	--	--	.2	.26	.21	--
08...	0845	25	--	E25	--	--	--	--	--	--
NOV. 09...	0940	70	--	E30	--	--	.8	.24	.20	--
DEC. 10...	1000	140	257	22	.12	.04	2.4	.45	.24	426
JAN. 18...	1245	E75	--	E20	--	--	.9	.040	.040	--
FEB. 24...	0845	--	--	E15	--	--	1.5	.15	.040	--
MAR. 22...	0930	287	185	14	.55	.00	1.8	.080	.080	304
APR. 19...	1025	116	--	E20	--	--	3.2	.10	.070	--
MAY 24...	1145	44	--	E25	--	--	.8	.24	.20	--
JUNE 15...	0830	109	179	20	1.6	.05	5.3	.27	.030	340
JULY 20...	1015	17	--	E30	--	--	.4	.41	.070	--
AUG. 13...	0920	17	--	E30	--	--	.2	.070	.040	--

DATE	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL RESI-DUE (MG/L)	HARD-NESS (CA,MG) (MG/L)	SPECI-FIC CONDUC-TANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT. 07...	--	--	E340	696	8.1	15.5	13	8.0	82	--
08...	--	--	E325	--	--	15.0	--	6.4	64	1.8
NOV. 09...	--	--	E360	708	8.0	7.5	2	10.6	90	.7
DEC. 10...	28	454	350	678	7.8	5.0	5	9.8	78	1.6
JAN. 18...	--	--	E430	734	7.7	.0	1	10.8	75	--
FEB. 24...	--	--	E170	346	7.1	-.5	10	9.0	62	3.4
MAR. 22...	70	374	250	499	7.5	2.0	7	10.8	79	12
APR. 19...	--	--	E310	592	7.9	11.5	5	8.2	78	2.3
MAY 24...	--	--	E620	674	7.7	16.0	4	7.2	73	1.8
JUNE 15...	246	586	E270	519	7.4	19.5	120	7.2	79	4.3
JULY 20...	--	--	E340	643	8.0	18.0	10	7.4	80	.6
AUG. 13...	--	--	E320	670	7.7	18.5	4	3.8	41	1.4

DATE	IMME-DIATE COLI-FORM (COL. PER 100 ML)	PHENOLS (UG/L)	AIR TEMP-ERATURE (DEG C)	OIL-GREASE (SEVER-ITY)	FLOAT-ING ALGAE MATS (SEVER-ITY)	ATMOS-PHERIC ODOR (SEVER-ITY)	FLOAT-ING DEBRIS (SEVER-ITY)	TUR-BID-ITY (SEVER-ITY)	FLOAT-ING OR SOLID ICE COVER (SEVER-ITY)
OCT. 07...	--	0	28.0	0	--	1	--	1	--
08...	13400	--	20.0	0	--	--	1	0	--
NOV. 09...	27000	10	13.0	0	--	--	--	1	--
DEC. 10...	1300	13	.0	0	1	--	--	2	--
JAN. 18...	90000	5	.0	0	--	--	--	1	4
FEB. 24...	2400	17	--	0	--	--	--	2	1
MAR. 22...	700	13	1.5	0	--	--	--	2	--
APR. 19...	2000	39	20.0	0	--	--	--	1	--
MAY 24...	8000	4	20.0	0	--	--	1	2	--
JUNE 15...	25000	15	18.0	0	--	--	1	3	--
JULY 20...	21000	3	26.0	0	--	--	--	2	--
AUG. 13...	3900	8	19.0	0	--	--	--	2	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORD STATIONS

PERIODIC DETERMINATIONS OF SPECIFIC CONDUCTANCE

Specific conductance and water temperature measurements are made in Michigan at many streamgaging stations other than regular water-quality stations. These data are usually collected at monthly intervals during routine visits to the station.

PERIODIC DETERMINATIONS OF SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
STREAMS TRIBUTARY TO LAKE MICHIGAN									
04059000 ESCANABA RIVER AT CORNELL, MICH. (LAT 455431, LONG 0871249)									
DEC. 17, 1970	1130	1000^A	200	.0	APR. 08......	1400	1700^A	200	.0
MAR. 11, 1971	1210	600^A	230	.5					
04059500 FORD RIVER NEAR HYDE, MICH. (LAT 454520, LONG 0871205)									
DEC. 17, 1970	1210	356^A	260	.0	APR. 08......	1530	1100^A	280	.0
MAR. 11, 1971	1020	295^A	300	.5	JUNE 14......	1100	370	250	21.0
04065300 W. BR. STURGEON RIVER NEAR RANDVILLE, MICH. (LAT 460045, LONG 0875841)									
MAR. 10, 1971	1140	23^A	300	.5	JULY 16.....	1050	20.8	310	16.5
APR. 26......	1600	88^A	200	8.5	AUG 11.....	1100	12.4	340	16.0
MAY 04......	1400	71	220	8.0	SEPT. 07.....	1300	9.79	350	18.5
JUNE 18......	1300	21.2	300	18.5					
04065500 STURGEON RIVER NEAR FOSTER CITY, MICH. (LAT 455430, LONG 0874515)									
MAR. 10, 1971	1330	140	320	.0	JUNE 23......	1445	300	126	22.0
APR. 13......	1550	1750	240	8.5	JULY 16......	1300	112	320	19.0
APR. 22......	1155	1130	175	8.0	SEPT. 07......	1500	38.0	340	22.0
MAY 04......	1450	382	240	8.5					
04123000 BIG SABLE RIVER NEAR FREESOIL, MICH. (LAT 440713, LONG 0861648)									
OCT. 08, 1970	0820	107	320	14.0	APR. 07......	1030	247	250	4.0
NOV. 03......	1620	170	315	8.0	MAY 05......	1050	175	290	10.0
DEC. 09......	0905	153	340	3.0	JUNE 04......	0810	150	310	15.0
JAN. 05, 1971	1600	140	330	0.5	JULY 07......	1610	105	320	22.0
FEB. 10......	1650	133	320	.0	AUG 06......	0845	93.0	315	15.0
MAR. 10......	1320	165	300	.0	SEPT. 08......	0915	82.7	315	18.0
04123500 MANISTEE RIVER NEAR GRAYLING, MICH. (LAT 444135, LONG 0845050)									
OCT. 01, 1970	1025	190	265	7.0	APR. 01......	0920	193	300	6.0
NOV. 02......	1305	187	290	5.0	MAY 03......	1305	243	270	8.0
DEC. 01......	0830	195	290	4.0	JUNE 01......	1245	216	280	9.5
JAN. 04, 1971	1135	191	280	.0	JULY 01......	1305	203	300	16.0
FEB. 01......	1325	175	290	.0	AUG. 02......	1240	186	310	16.5
MAR. 01......	0945	168	270	.0	SEPT. 01......	0830	177	285	13.5
04124000 MANISTEE RIVER NEAR SHERMAN, MICH. (LAT 442611, LONG 0854155)									
OCT. 08, 1970	1430	963	280	13.5	APR. 08......	1015	1560	250	4.5
NOV. 05......	1300	1340	270	6.0	MAY 06......	1430	1390	275	11.5
DEC. 10......	1135	1135	280	2.0	JUNE 08......	1215	1070	300	18.0
JAN. 04, 1971	1245	972	300	.0	JULY 09......	1230	859	295	19.5
FEB. 18.......	1100	890	300	.5	AUG. 02......	1055	857	295	17.0
MAR. 11.......	1215	1060	285	1.5	SEPT. 10......	0810	776	310	16.0

PERIODIC DETERMINATIONS OF SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
04125500 PINE RIVER NEAR HOXEYVILLE, MICH. (LAT 441211, LONG 0854758)									
OCT. 08, 1970	1025	232	300	12.0	APR. 08......	1120	578	220	4.0
NOV. 05......	0930	433	260	6.5	MAY 06......	0830	341	250	9.5
DEC. 10......	0850	313	320	3.5	JUNE 08......	1045	287	300	14.5
JAN. 04, 1971	1500	250	325	2.0	JULY 09......	0820	240	305	15.0
FEB. 10......	1055	252	280	0.5	AUG. 02......	1155	237	300	14.5
MAR. 11......	0940	303	290	2.0	SEPT. 10......	1040	216	315	13.5
04126000 MANISTEE RIVER NEAR MANISTEE, MICH. (LAT 441614, LONG 0861156)									
OCT. 07......	1210	1780	340	14.5	APR. 07......	1310	3060	260	3.0
NOV. 04......	1630	2440	290	8.5	MAY 05......	1445	2810	230	11.5
DEC. 09......	1225	2620	320	2.0	JUNE 04......	1050	2450	285	15.5
JAN. 05, 1971	0950	2500	305	.0	JULY 08......	0920	1930	320	22.0
FEB. 11......	0900	1570	320	.0	AUG. 06......	0950	1550	305	18.5
MAR. 10......	0950	2310	300	.0	SEPT. 09......	1505	1180	315	18.5
04126200 LITTLE MANISTEE RIVER NEAR FREESOIL, MICH. (LAT 441100, LONG 0861000)									
OCT. 07, 1970	1510	139	310	13.0	APR. 07......	1545	259	240	8.0
NOV. 04......	0825	206	270	6.5	MAY 05......	1650	244	260	13.0
DEC. 09......	1040	186	290	4.0	JUNE 04......	1230	214	280	17.0
JAN. 05, 1971	1145	158	290	2.0	JULY 08......	1100	162	310	17.0
FEB. 11......	1130	152	290	1.0	AUG. 06......	1250	141	290	16.0
MAR. 10......	1145	182	280	2.0	SEPT. 08......	1100	131	240	16.5
04127000 BOARDMAN RIVER NEAR MAYFIELD, MICH. (LAT 443818, LONG 0853110)									
OCT. 01, 1970	1320	190	255	10.5	APR. 05......	1030	210	220	3.0
NOV. 03,.....	1220	233	280	8.0	MAY 04......	1315	309	240	9.0
DEC. 02......	1335	288	270	3.5	JUNE 03......	1340	187	270	11.5
JAN. 06, 1971	1115	204	270	8.5	JULY 01......	1320	183	280	19.5
FEB. 03......	1345	170	280	.5	AUG. 03......	1115	180	300	16.0
MAR. 04......	1400	197	265	2.0	SEPT. 09......	0940	139	270	17.0
04127800 JORDAN RIVER NEAR EAST JORDAN, MICH. (LAT 450609, LONG 085053)									
OCT. 12, 1970	0945	171	340	8.5	APR. 12......	1125	380	240	5.0
NOV. 09......	0920	162	330	5.0	MAY 04......	1500	194	320	5.2
DEC. 07......	1100	162	340	.0	JUNE 02......	0925	186	315	10.5
JAN. 11, 1971	1135	170	340	1.0	JULY 01......	1305	174	345	15.5
FEB. 11......	1150	219	340	.5	AUG. 03......	1335	175	320	13.0
MAR. 11......	0820	168	335	1.0	SEPT. 18......	1025	167	325	14.0

PERIODIC DETERMINATIONS OF SPECIFIC CONDUCTANCE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

STREAMS TRIBUTARY TO LAKE HURON

04131500 RAINY RIVER NEAR OCQUEOC, MICH. (LAT 452430, LONG 0841045)

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
OCT. 12, 1970	1550	83.3	315	11.0	APR. 13......	0930	53.6	200	2.0
NOV. 09......	1510	27.5	315	5.5	MAY 12......	0845	74.0	240	10.0
DEC. 09......	1105	88.2	250	.0	JUNE 07......	1345	46.0	290	17.5
JAN. 11, 1971	1640	32.4	320	.0	JULY 12......	1355	8.55	350	21.0
FEB. 11......	1150	21.9	340	.5	AUG. 09......	1525	11.2	330	21.5
MAR. 09......	1535	50.4	340	.0	SEPT. 13......	1515	11.1	350	16.0

04139000 HOUGHTON CREEK NEAR LUPTON, MICH. (LAT 442345, LONG 0840250)

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
OCT. 13, 1970	1115	43.1	390	9.5	APR. 19......	1145	23.5	270	1.5
NOV. 10......	0750	58.7	375	2.0	MAY 10......	0950	50.8	365	11.0
DEC. 14......	0955	50.7	350	2.0	JUNE 16......	0810	45.3	375	15.0
JAN. 18, 1971	1130	45.9	285	.0	JULY 12......	1055	43.5	360	14.0
FEB. 17......	1025	41.3	375	.0	AUG. 11......	1125	46.2	355	15.5
MAR. 17......	1015	98.8	350	.5	SEPT. 13......	1235	36.0	355	15.0

04139500 RIFLE RIVER NEAR LUPTON, MICH. (LAT 442306, LONG 0840218)

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
OCT. 13, 1970	1115	43.1	390	9.5	APR. 09......	1200	402	280	10.0
NOV. 10,.....	0900	109	385	8.5	MAY 10......	1110	92	380	11.5
DEC. 14......	0955	51	350	2.0	JUNE 16......	0910	8.4	390	15.0
JAN. 18, 1971	1225	85	270	.0	JULY 14......	1110	80	370	14.5
FEB. 17......	1215	77	395	0.5	AUG. 11......	1300	75	375	16.0
MAR. 17......	1110	174	380	.5	SEPT. 15......	0815	54	380	12.5

04140000 PRIOR CREEK NEAR SELKIRK, MICH. (LAT 442006, LONG 0840406)

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
OCT. 13, 1970	1340	11.8	420	11.0	APR. 09......	0940	18.4	245	1.0
NOV. 10......	1515	27.0	400	8.5	MAY 10......	1250	16.7	345	15.0
DEC. 16......	1150	18.0	395	.5	JUNE 15......	1445	12.7	425	19.0
JAN. 20, 1971	1120	15.3	405	.0	JULY 12......	1255	11.1	370	17.0
FEB. 18......	1215	13.3	400	.0	AUG. 12......	1425	6.40	375	15.0
MAR. 16......	1535	89.9	240	1.5	SEPT. 13......	1310	7.93	385	16.5

04140500 RIFLE RIVER AT SELKIRK, MICH. (LAT 441848, LONG 0840410)

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
OCT. 13, 1970	1445	113	320	10.5	APR. 09......	1420	842	210	1.5
NOV. 09......	1415	162	385	5.5	MAY 10......	1350	140	375	15.0
DEC. 16......	1225	149	395	0.5	JUNE 15......	1230	120	405	17.5
JAN. 20, 1971	0815	101	405	.0	JULY 19......	1310	109	360	16.0
FEB. 17......	0830	119	400	.0	AUG. 17......	1030	78.8	385	15.0
MAR. 16......	1420	394	350	1.5	SEPT. 14......	1620	75.5	385	17.5

04141000 S. BR. SHEPARDS CREEK NEAR SELKIRK, MICH. (LAT 441828, LONG 0840513)

Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)	Date	Time	Discharge (CFS)	Specific conductance (micromhos)	Temperature (Deg C)
OCT. 13, 1970	1535	.171	650	12.0	APR. 29.....	1100	.42	480	5.5
NOV. 09......	1510	.316	565	6.0	MAY 10.....	1450	.215	490	15.0
DEC. 16......	1305	.243	540	.0	JUNE 15.....	1330	.104	530	19.5
JAN. 20, 1971	0920	.204	545	.0	JULY 19.....	1425	.128	420	17.5
FEB. 16......	1615	.200	560	.0	AUG. 17.....	1335	.045	525	19.0
MAR. 07......	0810	6.07	290	.0	SEPT. 13.....	1405	0.070	550	18.5

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORD STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(NOTE--VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	TIME	DISCHARGE (CFS)	ALKALINITY AS CACO3 (MG/L)	NITRATE (NO3) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
STREAMS TRIBUTARY TO LAKE MICHIGAN										
04058100 - MIDDLE BRANCH ESCANABA RIVER NEAR PRINCETON, MIC (LAT 46 19 02 LONG 087 30 07)										
NOV., 1970										
03...	1030	461	--	E.3	--	60	6.7	5.0	230	--
11...	1515	7.2	--	E.0	--	70	7.3	5.0	80	2
DEC.										
15...	1015	365	--	--	--	70	7.9	.5	150	2
JAN., 1971										
18...	1030	E360	--	E.8	--	100	7.5	.0	130	2
MAR.										
01...	1330	E360	34	E1.1	38	100	7.3	.5	80	2
APR.										
06...	1000	E360	--	E1.8	--	50	7.6	.5	120	1
27...	1045	845	--	E.0	--	55	7.3	5.0	140	1
MAY										
21...	1605	396	--	E.0	--	100	7.0	11.0	70	1
24...	1100	395	--	--	--	60	6.7	11.0	--	--
JUNE										
15...	1400	382	--	E.0	--	110	7.0	20.5	190	1
JULY										
14...	1100	388	--	E.3	--	90	7.0	18.0	190	2
AUG.										
17...	1600	7.2	--	--	50	100	7.5	21.5	40	1
SEP.										
21...	0930	362	--	E.1	52	100	6.7	11.0	20	2
04058120 - GREEN CREEK NEAR PALMER, MICH. (LAT 46 22 21 LONG 087 36 21)										
NOV., 1970										
03...	1100	E13	--	E1.0	--	300	7.4	5.0	80	--
09...	1600	12	--	E1.0	--	300	8.0	4.0	50	2
DEC.										
15...	1100	18	--	E2.8	--	280	7.7	.0	60	2
JAN., 1971										
18...	1100	18	--	E2.3	--	320	7.4	.0	50	4
MAR.										
01...	1400	E18	166	E5.0	104	360	7.6	.5	10	1
APR.										
06...	1110	E30	--	E1.8	--	50	7.2	.0	10	1
27...	1100	E15	--	E1.5	--	200	7.1	5.0	80	1
MAY										
21...	1430	E18	--	E.2	--	310	7.4	14.0	110	0
24...	1200	E35	--	--	--	230	7.5	10.0	--	--
JUNE										
15...	1445	E15	--	E.0	--	340	7.5	20.0	50	1
JULY										
14...	1245	12	--	E.0	--	220	7.2	18.0	180	3
AUG.										
13...	1430	E10	--	--	82	280	7.5	16.0	60	--
SEP.										
21...	1000	1.5	--	E.7	78	180	6.9	11.0	30	3
04058500 - EAST BRANCH ESCANABA RIVER AT GWINN, MICH. (LAT 46 17 10 LONG 087 26 00)										
NOV., 1970										
03...	1000	101	--	E1.7	--	140	7.1	5.0	150	--
11...	1530	64	--	E.8	--	160	7.6	5.0	80	2
DEC.										
15...	0935	74	--	E1.0	--	160	7.5	.5	100	2
28...	1130	57	--	--	--	180	7.2	--	55	2
JAN., 1971										
18...	0930	E50	--	E1.0	--	200	7.3	.0	60	2
MAR.										
01...	1115	65	40	E2.3	60	160	7.1	.5	60	1
APR.										
06...	0915	127	--	E1.8	--	100	8.1	.0	100	1
27...	1015	328	--	E.8	--	120	6.8	5.0	100	1
MAY										
21...	1700	151	--	E.4	--	190	6.9	11.0	90	0
24...	1025	132	--	--	--	130	7.2	10.0	--	--
JUNE										
15...	1100	101	--	E.1	--	180	8.1	17.0	100	1
JULY										
14...	0845	177	--	E.8	--	100	7.0	14.5	160	1
AUG.										
17...	1330	38	--	--	64	140	6.5	18.0	30	1
17...	1500	38	--	--	--	140	7.6	18.0	--	--
SEP.										
21...	0900	44	--	E.4	66	120	7.0	9.5	40	3

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORD STATIONS

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(NOTE--VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

STREAMS TRIBUTARY TO LAKE MICHIGAN

04062230 - MICHIGAMME RIVER NEAR MICHIGAMME, MICH. (LAT 46 28 00 LONG 088 04 28)

DATE	TIME	DIS-CHARGE (CFS)	ALKA-LINITY AS CACO3 (MG/L)	NITRATE (NO3) (MG/L)	HARD-NESS (CA,MG) (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
NOV., 1970										
02...	1130	468	--	E.2	--	50	6.8	8.0	70	--
12...	1220	352	--	E.3	--	<50	7.3	6.0	90	0
DEC.										
14...	1430	313	--	--	--	<50	7.7	.5	90	1
JAN., 1971										
18...	1615	148	--	E.5	--	60	7.1	.5	110	1
MAR.										
03...	1600	136	16	E.4	36	70	6.8	.5	60	1
APR.										
06...	1020	255	--	E.7	--	50	7.5	.5	100	1
26...	1300	2000	--	E.6	--	55	6.3	3.0	100	1
MAY										
19...	1430	702	--	E.5	--	<50	6.5	8.5	0	1
JUNE										
15...	1415	322	--	E.0	--	75	6.7	22.0	90	2
JULY										
12...	1420	186	--	--	--	<50	6.9	21.5	90	1
AUG.										
16...	1630	82	--	--	--	<50	7.2	21.0	--	--
18...	1545	79	--	E.2	24	50	5.6	23.5	40	0
SEP.										
21...	1800	46	--	E.3	24	<50	6.8	--	40	2
28...	0900	53	--	--	--	70	7.9	14.0	--	--

04062400 - MICHIGAMME RIVER NEAR WITCH LAKE, MICH. (LAT 46 14 48 LONG 088 00 45)

DATE	TIME	DIS-CHARGE (CFS)	ALKA-LINITY AS CACO3 (MG/L)	NITRATE (NO3) (MG/L)	HARD-NESS (CA,MG) (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
NOV., 1970										
02...	1030	754	--	E.8	--	70	7.0	6.0	115	--
12...	1120	510	--	E.5	--	70	7.1	5.0	90	1
DEC.										
14...	1230	530	--	--	--	70	7.5	.5	90	1
JAN., 1971										
18...	1145	216	--	E.6	--	100	7.2	.5	90	2
MAR.										
03...	1200	235	56	E1.4	40	120	7.2	.0	60	2
APR.										
06...	1400	350	--	E1.0	--	50	7.4	.0	130	1
26...	1030	2740	--	E.5	--	60	7.5	2.5	100	1
MAY										
19...	1600	956	--	E.4	--	55	6.7	10.5	50	1
JUNE										
15...	1100	504	--	E.3	--	110	7.4	15.5	70	1
JULY										
12...	1100	255	--	E.2	--	90	6.9	15.5	90	2
AUG.										
16...	1230	105	--	--	--	120	7.2	18.5	--	--
18...	1815	81	--	--	48	120	6.7	23.5	40	1
SEP.										
21...	1830	47	--	E.2	78	160	7.1	12.5	30	1

04106000 - KALAMAZOO RIVER AT COMSTOCK, MICH. (LAT 42 17 05 LONG 085 30 50)

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT., 1970										
19...	0930	1270	13	78	21	12	2.4	258	0	53
MAR., 1971										
26...	1315	1430	--	--	--	--	--	232	0	56
JULY, 1971										
29...	1420	1060	--	--	--	--	--	250	0	39

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
OCT., 1970										
19...	30	.4	1.7	333	280	68	533	8.2	25	65
MAR., 1971										
26...	19	--	2.6	290	240	50	494	7.4	--	--
JULY, 1971										
29...	26	--	1.4	318	250	45	530	7.6	10	2

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

(NOTE--VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
STREAMS TRIBUTARY TO LAKE SUPERIOR..												
04031650 - COPPS C 0.3 MI. ABOVE MOUTH NR MARENISCO, MI. (LAT 46 27 23 LONG 089 41 22.01)												
JULY, 1971 16...	1400	1.7	--	--	--	--	--	--	39	0	E0	1.0
04032180 - LITTLE CARP R 11.5 MI. SW OF WHITE PINE, MI. (LAT 46 43 12 LONG 089 49 29.01)												
JULY, 1971 16...	1310	5.3	--	--	--	--	--	--	56	0	E0	7.5
04032700 - M BR ONTONAGON R 6 MI. W OF WATERSMEET, MI. (LAT 46 16 38 LONG 089 18 33.01)												
JULY, 1971 18...	0900	4.6	--	--	--	--	--	--	87	0	E6.0	.0
04032900 - M BR ONTONAGON R AT US-45 NR WATERSMEET, MI. (LAT 46 16 30 LONG 089 10 39.01)												
JULY, 1971 15...	1500	45	--	--	--	--	--	--	81	0	E5.0	3.0
04033100 - DEADMAN C AT USFS RD 169 NR TROUT CREEK, MI. (LAT 46 21 47 LONG 089 00 58.01)												
JULY, 1971 15...	1130	5.2	--	--	--	--	--	--	78	0	E0	1.0
04034780 - E BR ONTONAGON R 4.5 MI. SW OF KENTON, MI. (LAT 46 28 15 LONG 088 47 58.01)												
JULY, 1971 15...	0930	43	--	--	--	--	--	--	44	0	E0	0
04042198 - W BR STURGEON R 1.5 MI. S OF ALSTON, MI. (LAT 46 44 34 LONG 088 45 40.01)												
JULY, 1971 14...	1100	18	--	--	--	--	--	--	124	0	E7.0	0
04042431 - BART C 4.5 MI. SW OF TAPIOLA, MI. (LAT 46 54 16 LONG 088 42 52.01)												
JULY, 1971 14...	1400	6.2	--	--	--	--	--	--	112	0	E7.0	1.5
04042435 - BART C 2.6 MI. NW OF ELO, MI. (LAT 46 53 46 LONG 088 40 44.01)												
JULY, 1971 14...	1345	11	--	--	--	--	--	--	112	0	E5.0	1.0
04042453 - W BR OTTER R 4.5 MI. W OF NISULA, MI. (LAT 46 46 43 LONG 088 53 07.01)												
JULY, 1971 14...	0830	3.4	--	--	--	--	--	--	95	0	E0	3.0
04043250 - SALMON TROUT R NR BIG BAY, MI. (LAT 46 50 56 LONG 087 47 56.01)												
JULY, 1971 13...	1315	51	--	--	--	--	--	--	76	0	E0	3.0
04044537 - W BR CHOCOLAY R 2.0 MI. W OF SKANDIA, MI. (LAT 46 22 32 LONG 087 16 59.01)												
JULY, 1971 13...	0800	--	--	--	--	--	--	--	66	0	E0	7.0
STREAMS TRIBUTARY TO LAKE MICHIGAN..												
04057803 - M BR ESCANABA R AT CLARKSBURG, MI. (LAT 46 29 22 LONG 087 51 28.01)												
JUNE, 1971 22...	0800	--	--	--	--	--	--	--	32	0	E0	1.5

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER, 1971
(NOTE--VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
..................................STREAMS TRIBUTARY TO LAKE SUPERIOR											
04031650 - COPPS C 0.3 MI. ABOVE MOUTH NR MARENISCO, MI.								(LAT 46 27 23 LONG 089 61 22 01)			
JULY, 1971 16...	--	E0.00	--	--	38	32	70	7.1	17.5	150	1
04032180 - LITTLE CARP R 11.5 MI. SW OF WHITE PINE, MI.								(LAT 46 43 12 LONG 089 49 29 01)			
JULY, 1971 16...	--	E.40	--	--	60	14	120	7.8	14.0	0	--
04032700 - M BR ONTONAGON R 6 MI. W OF WATERSMEET, MI.								(LAT 46 16 38 LONG 089 18 33 01)			
JULY, 1971 18...	--	E.00	--	--	66	0	130	7.8	12.0	50	1
04032900 - M BR ONTONAGON R AT US-45 NR WATERSMEET, MI.								(LAT 46 16 30 LONG 089 10 39 01)			
JULY, 1971 15...	--	E.00	--	--	68	2	120	7.2	20.5	130	1
04033100 - DEADMAN C AT USFS RD 169 NR TROUT CREEK, MI.								(LAT 46 21 47 LONG 089 00 58 01)			
JULY, 1971 15...	--	E.00	--	--	70	6	120	7.4	22.0	100	2
04034780 - E BR ONTONAGON R 4.5 MI. SW OF KENTON, MI.								(LAT 46 28 15 LONG 088 47 58 01)			
JULY, 1971 15...	--	E.00	--	--	40	4	70	7.5	15.0	120	1
04042198 - W BR STURGEON R 1.5 MI. S OF ALSTON, MI.								(LAT 46 44 34 LONG 088 45 40 01)			
JULY, 1971 14...	--	E.00	--	--	96	0	160	7.9	13.0	110	1
04042431 - BART C 4.5 MI. SW OF TAPIOLA, MI.								(LAT 46 54 16 LONG 088 42 52 01)			
JULY, 1971 14...	--	E.50	--	--	102	10	165	8.0	11.5	0	0
04042435 - BART C 2.6 MI. NW OF ELO, MI.								(LAT 46 53 46 LONG 088 40 44 01)			
JULY, 1971 14...	--	E.00	--	--	88	0	160	8.1	13.5	50	0
04042453 - W BR OTTER R 4.5 MI. W OF NISULA, MI.								(LAT 46 46 43 LONG 088 53 07 01)			
JULY, 1971 14...	--	E.70	--	--	80	2	145	7.7	--	80	1
04043250 - SALMON TROUT R NR BIG BAY, MI.								(LAT 46 50 56 LONG 087 47 56 01)			
JULY, 1971 13...	--	E.00	--	--	62	0	120	7.6	--	70	1
04044537 - W BR CHOCOLAY R 2.0 MI. W OF SKANDIA, MI.								(LAT 46 22 32 LONG 087 16 59 01)			
JULY, 1971 13...	--	E.07	--	--	66	12	140	7.5	18.0	70	1
..................................STREAMS TRIBUTARY TO LAKE MICHIGAN											
04057803 - M BR ESCANABA R AT CLARKSBURG, MI.								(LAT 46 29 22 LONG 087 51 28 01)			
JUNE, 1971 22...	--	E1.0	--	--	40	14	70	6.9	15.5	190	2

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued..................................												
04058120 - GREEN C NR PALMER, MI.									(LAT 46 22 21 LONG 087 36 21.01)			
JUNE, 1971 21...	1700	16	--	--	--	--	--	--	163	0	E6.0	10
04058124 - GREEN C 6 MI. S OF PALMER, MI.									(LAT 46 21 23 LONG 087 34 31.01)			
JUNE, 1971 22...	1405	10	--	--	--	--	--	--	139	0	E7.0	8.0
04058130 - GREEN C AT HWY 35 NR PRINCETON, MI.									(LAT 46 20 02 LONG 087 31 58.01)			
JUNE, 1971 22...	1100	16	--	--	--	--	--	--	132	0	E5.0	8.0
04058370 - GOOSE L O 3.7 MI. E OF PALMER, MI.									(LAT 46 25 58 LONG 087 30 36.01)			
JUNE, 1971 23...	0900	17	--	--	--	--	--	--	76	0	E50	6.0
04058380 - GOOSE L O 4.7 MI. SE OF PALMER, MI.									(LAT 46 24 37 LONG 087 30 30.01)			
JUNE, 1971 23...	1105	25	--	--	--	--	--	--	161	0	E20	6.0
04058400 - GOOSE L O NR SANDS STATION, MI.									(LAT 46 23 26 LONG 087 29 40.01)			
JUNE, 1971 22...	1700	--	--	--	--	--	--	--	78	0	E7.0	6.5
04058482 - E BR ESCANABA R 3 MI. W OF GWINN, MI.									(LAT 46 19 38 LONG 087 26 34.01)			
JUNE, 1971 06...	1100	--	--	--	--	--	--	--	61	0	E0	6.0
04058500 - E BR ESCANABA R AT GWINN, MI.									(LAT 46 17 10 LONG 087 26 00.01)			
JUNE, 1971 23...	1300	96	--	--	--	--	--	--	59	0	E4.0	--
04058520 - ESCANABA R 5 MI. S OF GWINN, MI.									(LAT 46 12 12 LONG 087 25 56.01)			
JUNE, 1971 12...	1600	--	--	--	--	--	--	--	61	0	E6.0	3.5
04058540 - W BR ESCANABA R 10 MI. N OF RALPH, MI.									(LAT 46 11 45 LONG 087 45 39.01)			
JULY, 1971 12...	1400	31	--	--	--	--	--	--	149	0	E10	1.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER, 1971
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DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
............................STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued											
04058120 - GREEN C NR PALMER, MI.								(LAT 46 22 21 LONG 087 36 21.01)			
JUNE, 1971											
21...	--	E0.00	--	--	92	0	230	7.7	21.0	55	1
04058124 - GREEN C 6 MI. S OF PALMER, MI.								(LAT 46 21 23 LONG 087 34 31.01)			
JUNE, 1971											
22...	--	E.00	--	--	78	0	230	7.4	16.5	116	1
04058130 - GREEN C AT HWY 35 NR PRINCETON, MI.								(LAT 46 20 02 LONG 087 31 58.01)			
JUNE, 1971											
22...	--	E.00	--	--	80	0	240	7.6	16.0	100	1
04058370 - GOOSE L O 3.7 MI. E OF PALMER, MI.								(LAT 46 25 58 LONG 087 30 36.01)			
JUNE, 1971											
23...	--	E.00	--	--	100	38	150	7.3	--	20	0
04058380 - GOOSE L O 4.5 MI. SE OF PALMER, MI.								(LAT 46 24 37 LONG 087 30 30.01)			
JUNE, 1971											
23...	--	E.00	--	--	90	0	230	7.6	16.0	70	1
04058400 - GOOSE L O NR SANDS STATION, MI.								(LAT 46 23 36 LONG 087 29 40.01)			
JUNE, 1971											
22...	--	E.00	--	--	90	26	200	7.4	16.0	45	1
04058482 - E BR ESCANABA R 3 MI. N OF GWINN, MI.								(LAT 46 19 38 LONG 087 26 34.01)			
JUNE, 1971											
06...	--	E.00	--	--	64	14	140	7.6	15.0	90	1
04058500 - E BR ESCANABA R AT GWINN, MI.								(LAT 46 17 10 LONG 087 26 00.01)			
JUNE, 1971											
23...	--	E.00	--	--	59	11	140	7.2	17.0	190	0
04058520 - ESCANABA R 5 MI. S OF GWINN, MI.								(LAT 46 12 12 LONG 087 25 56.01)			
JUNE, 1971											
12...	--	E.00	--	--	52	2	110	7.0	19.0	170	1
04058540 - W BR ESCANABA R 10 MI. N OF RALPH, MI.								(LAT 46 11 45 LONG 087 45 39.01)			
JULY, 1971											
12...	--	E.00	--	--	44	0	240	8.0	16.5	150	2

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

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DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
04059000 - ESCANABA RIVER AT GAGE AT CORNELL, MICH. (LAT 45 54 31 LONG 087 12 49 01)												
MAY , 1971 14...	--	1160	--	--	23	9.2	--	--	102	0	E5.0	2.0
04059120 - FORD RIVER NEAR WATSON, MICHIGAN (LAT 45 58 42 LONG 087 26 22 01)												
MAY , 1971 14...	1330	198	--	--	32	13	--	--	139	0	E.0	2.0
04059130 - SOUTH BRANCH FORD R AT HWY-569 AT HELPS,MI (LAT 45 55 44 LONG 087 35 39 01)												
MAY , 1971 14...	1410	5.7	--	--	18	18	--	--	139	0	E5.0	2.0
04059135 - WEST BRANCH FORD RIVER NEAR LA BRANCH, MI. (LAT 45 56 31 LONG 087 27 10 01)												
MAY , 1971 14...	1110	33	--	--	30	9.7	--	--	122	0	E.0	2.0
04059140 - FORD RIVER NEAR WOODLAWN, MICHIGAN (LAT 45 55 53 LONG 087 21 24 01)												
MAY , 1971 14...	1045	258	--	--	26	8.3	--	--	102	0	E.0	1.0
04059150 - FORD RIVER NEAR CORNELL, MICHIGAN (LAT 45 51 53 LONG 087 18 41 01)												
MAY , 1971 14...	1530	291	--	--	33	11	--	--	139	0	E10	1.0
04059160 - TWENTY-FOUR MILE CREEK NEAR PERRONVILLE,MI. (LAT 45 51 15 LONG 087 18 55 01)												
MAY , 1971 14...	1415	9.2	--	--	55	15	--	--	210	6	E10	.0
04059170 - TEN MILE CREEK AT M-69 AT FAUNUS, MICHIGAN (LAT 45 53 36 LONG 087 30 44 01)												
MAY , 1971 14...	1400	8.5	--	--	28	12	--	--	127	0	E10	4.0
04059180 - TEN MILF CREEK AT LA BRANCHE, MICHIGAN . (LAT 45 52 22 LONG 087 28 10 01)												
MAY , 1971 14...	1450	16	--	--	28	14	--	--	132	0	E10	2.0
04059190 - TEN MILE CREEK NEAR LA BRANCHE, MICHIGAN . (LAT 45 51 57 LONG 087 25 42 01)												
MAY , 1971 14...	1110	20	--	--	30	13	--	--	142	0	E.0	3.0
04059200 - TEN MILE CREEK TRIBUTARY NR LA BRANCHE,MI. (LAT 45 53 56 LONG 087 25 42 01)												
MAY , 1971 14...	1215	5.3	--	--	38	14	--	--	171	1	E6.0	4.0
04059210 - TEN MILE C TRIB. NR MOUTH NR LA BRANCHE,MI. (LAT 45 52 09 LONG 087 25 40 01)												
MAY , 1971 14...	1130	7.3	--	--	36	17	--	--	171	2	E10	2.0
04059250 - TEN MILE CREEK NEAR WHITNEY, MICHIGAN (LAT 45 51 08 LONG 087 23 12 01)												
MAY , 1971 14...	1250	29	--	--	37	10	--	--	156	0	E9.0	2.0

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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DATE	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
04059000 - ESCANABA RIVER AT GAGE AT CORNELL, MICH. (LAT 45 54 31 LONG 087 12 49 01)											
MAY , 1971											
14...	--	E.3	--	--	96	12	180	7.9	14.5	100	0
04059120 - FORD RIVER NEAR WATSON, MICHIGAN (LAT 45 58 42 LONG 087 26 22 01)											
MAY , 1971											
14...	--	E.3	--	--	134	20	240	8.2	12.5	70	0
04059130 - SOUTH BRANCH FORD R AT HWY-569 AT HELPS, MI. (LAT 45 55 44 LONG 087 35 39 01)											
MAY , 1971											
14...	--	E.3	--	--	122	8	240	8.3	11.0	120	0
04059135 - WEST BRANCH FORD RIVER NEAR LA BRANCH, MI. (LAT 45 56 31 LONG 087 27 10 01)											
MAY , 1971											
14...	--	E.0	--	--	114	14	220	8.0	11.5	140	0
04059140 - FORD RIVER NEAR WOODLAWN, MICHIGAN (LAT 45 55 53 LONG 087 21 24 01)											
MAY , 1971											
14...	--	E.2	--	--	98	14	180	7.9	10.5	170	0
04059150 - FORD RIVER NEAR CORNELL, MICHIGAN (LAT 45 51 53 LONG 087 18 41 01)											
MAY , 1971											
14...	--	E.5	--	--	126	12	240	8.2	16.0	70	0
04059160 - TWENTY-FOUR MILE CREEK NEAR PERRONVILLE, MI. (LAT 45 51 15 LONG 087 18 55 01)											
MAY , 1971											
14...	--	E.0	--	--	198	16	320	8.6	10.5	60	0
04059170 - TEN MILE CREEK AT M-69 AT FAUNUS, MICHIGAN (LAT 45 53 36 LONG 087 30 44 01)											
MAY , 1971											
14...	--	E.6	--	--	120	16	230	8.0	11.0	120	4
04059180 - TEN MILE CREEK AT LA BRANCHE, MICHIGAN (LAT 45 52 22 LONG 087 28 10 01)											
MAY , 1971											
14...	--	E.0	--	--	126	18	240	8.1	12.5	150	0
04059190 - TEN MILE CREEK NEAR LA BRANCHE, MICHIGAN (LAT 45 51 57 LONG 087 25 42 01)											
MAY , 1971											
14...	--	E.0	--	--	128	12	240	8.3	10.0	110	0
04059200 - TEN MILE CREEK TRIBUTARY NR LA BRANCHE, MI. (LAT 45 53 56 LONG 087 25 42 01)											
MAY , 1971											
14...	--	E.0	--	--	152	10	280	8.5	9.0	80	0
04059210 - TEN MILE C TRIB. NR MOUTH NR LA BRANCHE, MI. (LAT 45 52 09 LONG 087 25 40 01)											
MAY , 1971											
14...	--	E.0	--	--	160	16	280	8.4	8.5	100	0
04059250 - TEN MILE CREEK NEAR WHITNEY, MICHIGAN (LAT 45 51 08 LONG 087 23 12 01)											
MAY , 1971											
14...	--	E.0	--	--	136	8	260	8.3	12.0	80	0

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DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04059400 - TEN MILE CREEK AT GAGE AT PERRONVILLE, MI. (LAT 45 48 38 LONG 087 22 00 01)												
MAY , 1971												
14...	1500	33	--	--	40	10	--	--	159	0	E10	1.0
04059500 - FORD RIVER AT GAGE AT HYDE, MICHIGAN . (LAT 45 45 20 LONG 087 12 05 01)												
MAY , 1971												
14...	1550	362	--	--	32	14	--	--	154	1	E15	1.5
04059680 - BIG CEDAR RIVER NEAR SPAULDING, MICHIGAN . (LAT 45 47 00 LONG 087 31 42 01)												
MAY , 1971												
14...	1200	25	--	--	35	14	--	--	154	1	E10	2.0
04059695 - WESTBRANCH BIG CEDAR R NR HERMANSVILLE, MI. (LAT 45 46 18 LONG 087 32 29 01)												
MAY , 1971												
14...	1100	17	--	--	35	11	--	--	144	0	E10	1.0
04059710 - FORTY-SEVEN MILE CREEK NEAR PERRONVILLE,MI. (LAT 45 47 52 LONG 087 24 28 01)												
MAY , 1971												
14...	1320	16	--	--	34	14	--	--	154	0	E6.0	1.0
04065300 - W BR STURGEON R AT GAGE NR RANDVILLE, MICH.(LAT 46 00 45 LONG 087 58 41 01)												
MAY , 1971												
14...	1600	36	--	--	31	15	--	--	159	1	E.0	2.0
04065470 - EAST BRANCH STURGEON R AT FOSTER CITY, MI. (LAT 45 57 57 LONG 087 44 30 01)												
MAY , 1971												
14...	1530	77	--	--	35	16	--	--	163	2	E15	3.0
04065500 - STURGECN RIVER AT GAGE NEAR FOSTER CITY,MI. (LAT 45 54 30 LONG 087 45 15 01)												
MAY , 1971												
14...	1430	174	--	--	39	15	--	--	166	1	E5.0	9.0
04065545 - STURGEON RIVER NEAR WAUCEDAH, MICHIGAN (LAT 45 49 51 LONG 087 43 37 01)												
MAY , 1971												
14...	1400	204	--	--	36	16	--	--	166	2	E15	2.0
04065550 - PINE CREEK NEAR RANDVILLE, MICH. (LAT 45 58 02 LONG 088 00 28)												
DEC., 1970												
29...	1230	1.2	12	--	28	13	1.5	1.2	120	0	19	3.0
04065560 - GROVELAND MINE OUTLET NEAR RANDVILLE, MICH. (LAT 45 58 27 LONG 088 00 10)												
DEC., 1970												
29...	1330	6.9	17	--	180	59	54	11	120	0	670	24
04065570 - PINE CREEK NEAR MERRIMAN, MICH. (LAT 45 56 42 LONG 087 59 13)												
DEC., 1970												
30...	1500	10	16	--	130	44	38	11	117	0	430	22
04065580 - MOUNTY'S CREEK NEAR MERRIMAN, MICH. (LAT 45 56 41 LONG 087 59 23)												
DEC., 1970												
30...	1400	1.4	9.6	--	23	7.2	1.3	1.3	74	0	20	4.0
04065590 - STEEL CREEK NEAR MERRIMAN, MICH. (LAT 45 56 31 LONG 087 59 33)												
DEC., 1970												
30...	1300	2.2	12	--	30	13	1.7	1.6	120	0	26	4.0

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DATE	DISSOLVED FLUORIDE (F) (MG/L)	DIS_ SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
04059400 - TEN MILE CREEK AT GAGE AT PERRONVILLE, MI. (LAT 45 46 38 LONG 087 22 00.01)											
MAY , 1971 14...	--	E.0	--	--	142	12	260	8.3	15.0	80	0
04059500 - FORD RIVER AT GAGE AT HYDE, MICHIGAN (LAT 45 45 20 LONG 087 12 05.01)											
MAY , 1971 14...	--	E.2	--	--	136	8	260	8.4	13.0	130	0
04059680 - BIG CEDAR RIVER NEAR SPAULDING, MICHIGAN (LAT 45 47 00 LONG 087 31 42.01)											
MAY , 1971 14...	--	E.4	--	--	146	18	260	8.4	10.0	80	0
04059695 - WESTBRANCH BIG CEDAR R NR HERMANSVILLE, MI. (LAT 45 46 18 LONG 087 32 29.01)											
MAY , 1971 14...	--	E.0	--	--	130	12	240	8.3	10.5	110	0
04059710 - FORTY-SEVEN MILE CREEK NEAR PERRONVILLE,MI. (LAT 45 47 52 LONG 087 24 28.01)											
MAY , 1971 14...	--	E.0	--	--	140	14	240	8.2	12.0	70	0
04065300 - W BR STURGEON R AT GAGE NR RANDVILLE, MICH. (LAT 46 00 45 LONG 087 58 41.01)											
MAY , 1971 14...	--	E.2	--	--	140	8	300	8.5	14.0	190	1
04065470 - EAST BRANCH STURGEON R AT FOSTER CITY, MI. (LAT 45 57 57 LONG 087 44 30.01)											
MAY , 1971 14...	--	E.0	--	--	152	15	280	8.5	14.5	70	0
04065500 - STURGEON RIVER AT GAGE NEAR FOSTER CITY, MI. (LAT 45 54 30 LONG 087 45 15.01)											
MAY , 1971 14...	--	E.4	--	--	160	22	260	8.5	14.0	--	--
04065545 - STURGEON RIVER NEAR WAUCEDAH, MICHIGAN (LAT 45 49 51 LONG 087 43 37.01)											
MAY , 1971 14...	--	E.0	--	--	154	14	280	8.4	14.5	40	0
04065550 - PINE CREEK NEAR RANDVILLE, MICH. (LAT 45 58 02 LONG 088 00 28)											
DEC., 1970 29...	.2	.5	--	159	120	25	245	7.4	.5	50	--
04065560 - GROVELAND MINE OUTLET NEAR RANDVILLE, MICH. (LAT 45 58 27 LONG 088 00 10)											
DEC., 1970 29...	.4	6.1	--	1090	690	590	1340	7.6	1.0	30	--
04065570 - PINE CREEK NEAR MERRIMAN, MICH. (LAT 45 56 42 LONG 087 59 13)											
DEC., 1970 30...	.4	3.4	--	817	500	410	1060	7.3	--	40	--
04065580 - MOUNTY'S CREEK NEAR MERRIMAN, MICH. (LAT 45 56 41 LONG 087 59 23)											
DEC., 1970 30...	3.0	7.0	--	127	87	26	166	7.2	1.0	130	--
04065590 - STEEL CREEK NEAR MERRIMAN, MICH. (LAT 45 56 31 LONG 087 59 33)											
DEC., 1970 30...	.2	.9	--	160	130	30	244	7.2	.5	35	--

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04097140 - INDIAN LAKE NEAR VICKSBURG, MICHIGAN (LAT 42 09 27 LONG 085 27 52)												
SEP., 1971 10...	1205	--	--	0	55	--	--	--	205	0	E44	8.0
04097212 - PORTAGE CREEK AB BARTON L NR VICKSBURG, MI. (LAT 42 06 21 LONG 085 33 14)												
SEP., 1971 10...	1400	E6.0	--	0	47	--	--	--	200	0	E35	16
04097217 - BARTON LAKE NEAR VICKSBURG, MICHIGAN (LAT 42 05 55 LONG 085 33 15)												
SEP., 1971 10...	1315	--	--	--	40	--	--	--	161	0	E38	29
04102186 - SOUTH BRANCH PAW PAW R AT PAW PAW, MICHIGAN (LAT 42 13 03 LONG 085 53 55)												
JULY, 1971 15...	1400	135	6.4	--	35	12	6.0	.2	134	0	27	12
04102192 - SOUTH BRANCH PAW PAW R NR. PAW PAW, MICHIGAN (LAT 42 14 10 LONG 085 53 12)												
JULY, 1971 15...	1300	--	10	--	54	21	6.5	1.2	226	0	29	14
04109403 - WINNEWANA L. D. NEAR WATERLOO, MI. (LAT 42 20 51 LONG 084 06 44)												
AUG., 1971 09...	1100	.22	--	--	--	--	--	--	251	0	E1.0	25
04122250 - M BR PERE MARQUETTE R 3.9 MI SW OF CHASE, M. (LAT 43 05 30 LONG 085 42 04 01)												
JUNE, 1971 24...	1615	13	--	--	--	--	--	--	205	0	E7.0	2.0
04122255 - M BR PERE MARQUETTE R ATROSA B. NR CHASE, M. (LAT 43 52 25 LONG 085 43 27 01)												
JUNE, 1971 24...	1530	18	--	--	--	--	--	--	206	0	E7.0	.0
04122260 - M BR PERE MARQUETTE R 2 MI SW OF IDLEWILD, (LAT 43 52 07 LONG 085 46 29 01)												
JUNE, 1971 21...	1435	38	--	--	--	--	--	--	206	0	E7.0	4.0
04122265 - M BR PERE MARQUETTE R 2.7 MI S OF BALDWIN, (LAT 43 51 22 LONG 085 50 25 01)												
JUNE, 1971 24...	1105	71	--	--	--	--	--	--	195	0	E8.0	7.0
04122265 - L S BR PERE MARQUETTE R NEAR IDEWILD, MI. (LAT 43 47 07 LONG 085 45 03 31)												
JUNE, 1971 24...	0805	23	--	--	--	--	--	--	193	0	E7.0	4.0
04122282 - L S BR PERE MARQUETTE R NEAR IDEWILD, MI. (LAT 43 49 02 LONG 085 48 01 01)												
JUNE, 1971 24...	0855	54	--	--	--	--	--	--	203	0	E10	3.0
04122285 - L S BR PERE MARQUETTE R NEAR IDLEWILD, MI. (LAT 43 50 08 LONG 085 50 27 01)												
JUNE, 1971 24...	0935	64	--	--	--	--	--	--	201	0	E8.0	2.0
04122290 - L S BR PERE MARQUETTE R NEAR IDEWILD, MI. (LAT 43 51 20 LONG 085 50 28 01)												
JUNE, 1971 24...	1020	69	--	--	--	--	--	--	190	0	E10	2.0

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04097140 - INDIAN LAKE NEAR VICKSBURG, MICHIGAN (LAT 42 09 27 LONG 085 27 52)											
SEP., 1971 10...	--	--	--	--	214	46	400	7.5	--	70	8
04097212 - PORTAGE CREEK AB BARTON L NR VICKSBURG, MI. (LAT 42 06 21 LONG 085 33 14)											
SEP., 1971 10...	--	--	--	--	192	28	420	7.4	23.5	100	19
04097217 - BARTON LAKE NEAR VICKSBURG, MICHIGAN (LAT 42 05 55 LONG 085 33 15)											
SEP., 1971 10...	--	--	--	--	166	34	370	7.2	25.0	50	11
04102186 - SOUTH BRANCH PAW PAW R AT PAW PAW, MICHIGAN (LAT 42 13 03 LONG 085 53 55)											
JULY, 1971 15...	.0	.9	.120	182	140	30	301	7.3	16.5	20	30
04102192 - SOUTH BRANCH PAW PAW R NR. PAW PAW, MICHIGAN (LAT 42 14 10 LONG 085 53 12)											
JULY, 1971 15...	.0	.2	.010	268	220	35	438	8.0	23.0	5	3
04109400 - WINNEWANA L. O. NEAR WATERLOO, MI. (LAT 42 20 51 LONG 084 06 44)											
AUG., 1971 09...	--	E.1	--	--	230	24	470	7.7	20.0	--	--
04122250 - M BR PERE MARQUETTE R 3.9 MI SW OF CHASE,M. (LAT 43 05 30 LONG 085 42 04 01)											
JUNE, 1971 24...	--	E.0	--	--	174	6	340	8.1	13.5	10	0
04122255 - M BR PERE MARQUETTE R ATROSA B. NR CHASE,M. (LAT 43 52 25 LONG 085 43 27 01)											
JUNE, 1971 24...	--	E.0	--	--	172	3	320	210	13.5	0	0
04122260 - M BR PERE MARQUETTE R 2 MI SW OF IDLEWILD, (LAT 43 52 07 LONG 085 46 29 01)											
JUNE, 1971 21...	--	E.0	--	--	170	1	340	8.2	14.5	0	0
04122175 - M BR PERE MARQUETTE R 2.7 MI S OF BALDWIN, (LAT 43 51 22 LONG 085 50 25 01)											
JUNE, 1971 24...	--	E.0	--	--	162	2	325	8.0	13.5	40	0
04122270 - L S BR PERE MARQUETTE R NEAR IDEWILD, MI.. (LAT 43 47 07 LONG 085 45 03 31)											
JUNE, 1971 24...	--	E.3	--	--	158	0	320	7.9	16.0	30	0
04122282 - L S BR PERE MARQUETTE R NEAR IDEWILD, MI.. (LAT 43 49 02 LONG 085 48 01 01)											
JUNE, 1971 24...	--	E.0	--	--	164	0	320	8.1	14.5	30	0
04122285 - L S BR PERE MARQUETTE R NEAR IDLEWILD, MI. (LAT 43 50 08 LONG 085 50 27 01)											
JUNE, 1971 24...	--	E.0	--	--	160	0	320	8.2	15.5	0	0
04122290 - L S BR PERE MARQUETTE R NEAR IDEWILD, MI.. (LAT 43 51 20 LONG 085 50 28 01)											
JUNE, 1971 24...	--	E.0	--	--	158	2	320	8.0	15.5	20	0

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04122300 - PERE MARQUETTE R AT M-37 NR BALDWIN, MI. (LAT 43 51 27 LONG 085 51 01.01)												
JUNE, 1971 24...	1150	135	--	--	--	--	--	--	190	0	E7.0	8.0
04122355 - PERE MARQUETTE R 2.8 MI SW OF BALDWIN, MI. (LAT 43 51 43 LONG 085 52 51.01)												
JUNE, 1971 24...	1315	195	--	--	--	--	--	--	178	0	E8.0	7.0
04123480 - MANISTEE R AT CAMERON BR. NR FREDERIC, MI. (LAT 44 47 59 LONG 084 05 24.01)												
JUNE, 1971 11...	1320	113	--	--	--	--	--	--	190	0	E8.0	3.0
04123485 - MANISTEE R AT CO RD 612 NEAR FREDERIC, MI. (LAT 44 46 16 LONG 084 50 29.01)												
JUNE, 1971 11...	1410	131	--	--	--	--	--	--	198	0	E10	3.0
04125100 - PINE RIVER AT PFS NEAR LUTHER, MI. (LAT 44 04 34 LONG 085 37 25.01)												
JUNE, 1971 23...	1100	104	--	--	--	--	--	--	200	0	E7.0	2.0
04125205 - PINE R AT SILVER C CAMPG. NEAR LUTHER, MI. (LAT 44 06 54 LONG 085 41 04.01)												
JUNE, 1971 23...	1200	138	--	--	--	--	--	--	205	0	E7.0	3.0
04126175 - L MANISTEE R AT JOHNSON RD. NEAR IRONS, MI. (LAT 44 06 20 LONG 085 55 38.01)												
JUNE, 1971 23...	1325	8.3	--	--	--	--	--	--	160	0	E10	5.0
04126180 - L MANISTEE R AT MITCHELL RD. NR IRONS, MI. (LAT 44 07 47 LONG 085 59 21.01)												
JUNE, 1971 23...	1420	100	--	--	--	--	--	--	166	0	E15	6.0
04126190 - L MANISTEE R AT RIVER DR. NEAR FREESOIL, MI. (LAT 45 09 47 LONG 086 05 07.01)												
JUNE, 1971 23...	1355	141	--	--	--	--	--	--	171	0	E9.0	5.0
04126573 - BETSIE R AT CO RD 669 NEAR TOMPSONVILLE, MI. (LAT 44 32 44 LONG 085 56 14.01)												
JUNE, 1971 23...	1200	89	--	--	--	--	--	--	205	0	E7.0	2.0
04126580 - LITTLE BETSIE RIVER NEAR NESSEN CITY, MI. (LAT 44 32 05 LONG 085 54 34.01)												
JUNE, 1971 23...	1240	10	--	--	--	--	--	--	195	0	E10	3.0
04126660 - PLATTE R AT BURNT MILL RD NEAR LAKE ANN, MI. (LAT 44 41 06 LONG 085 53 18)												
JUNE, 1971 23...	--	66	--	--	--	--	--	--	173	0	E6.0	2.0
04126725 - PLATTE RIVER AT CASE BRIDGE NEAR HONOR, MI. (LAT 44 38 51 LONG 085 59 26.01)												
JUNE, 1971 23...	--	109	--	--	--	--	--	--	195	0	E7.0	3.0
04126950 - S BR BOARDMAN R AB N BR NEAR S BOARDMAN, MI. (LAT 44 40 32 LONG 085 23 12.01)												
JUNE, 1971 23...	1005	5.0	--	--	--	--	--	--	176	0	E5.0	2.0

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04122300 - PERE MARQUETTE R AT M-37 NR BALDWIN, MI. (LAT 43 51 27 LONG 085 51 01.01)											
JUNE, 1971 24...	--	E.0	--	--	164	8	330	8.1	16.0	60	1
04122355 - PERE MARQUETTE R 2.8 MI SW OF BALDWIN, MI. (LAT 43 51 43 LONG 085 52 51.01)											
JUNE, 1971 24...	--	E.0	--	--	164	18	310	8.2	17.5	0	1
04123480 - MANISTEE R AT CAMERON BR. NR FREDERIC, MI. (LAT 44 47 59 LONG 084 05 24.01)											
JUNE, 1971 11...	--	E.6	--	--	156	0	280	8.1	12.5	40	1
04123485 - MANISTEE R AT CO RD 612 NEAR FREDERIC, MI. (LAT 44 46 16 LONG 084 50 29.01)											
JUNE, 1971 11...	--	E.0	--	--	152	0	280	7.8	14.5	0	0
04125100 - PINE RIVER AT PFS NEAR LUTHER, MI. (LAT 44 04 34 LONG 085 37 25.01)											
JUNE, 1971 23...	--	E.0	--	--	160	0	310	8.2	15.0	30	1
04125205 - PINE R AT SILVER C CAMPG. NEAR LUTHER, MI. (LAT 44 06 54 LONG 085 41 04.01)											
JUNE, 1971 23...	--	E.0	--	--	156	0	320	8.2	16.0	10	1
04126175 - L MANISTEE R AT JOHNSON RD. NEAR IRONS, MI. (LAT 44 06 20 LONG 085 55 38.01)											
JUNE, 1971 23...	--	E.0	--	--	144	13	320	8.0	16.5	20	0
04126180 - L MANISTEE R AT MITCHELL RD. NR IRONS, MI. (LAT 44 07 47 LONG 085 59 21.01)											
JUNE, 1971 23...	--	E.0	--	--	145	9	300	8.2	175	40	1
04126190 - L MANISTEE R AT RIVER DR. NEAR FREESOIL, MI. (LAT 45 09 47 LONG 086 05 07.01)											
JUNE, 1971 23...	--	E.0	--	--	148	8	280	8.2	19.5	20	1
04126573 - BETSIE R AT CO RD 669 NEAR TOMPSONVILLE, MI. (LAT 44 32 44 LONG 085 56 14.01)											
JUNE, 1971 23...	--	E.0	--	--	144	0	285	8.1	21.5	2	1
04126580 - LITTLE BETSIE RIVER NEAR NESSEN CITY, MI. (LAT 44 32 05 LONG 085 54 34.01)											
JUNE, 1971 23...	--	E1.7	--	--	162	2	315	8.1	17.0	10	0
04126660 - PLATTE R AT BURNT MILL RD NEAR LAKE ANN, MI. (LAT 44 41 06 LONG 085 53 18)											
JUNE, 1971 23...	--	E.0	--	--	146	4	300	8.2	--	20	0
04126725 - PLATTE RIVER AT CASE BRIDGE NEAR HONOR, MI. (LAT 44 38 51 LONG 085 59 26.01)											
JUNE, 1971 23...	--	E1.4	--	--	160	0	340	8.2	--	0	1
04126950 - S BR BOARDMAN R AB N BR NEAR S BOARDMAN, MI. (LAT 44 40 32 LONG 085 23 12.01)											
JUNE, 1971 23...	--	E1.8	--	--	148	4	280	8.2	13.5	10	1

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DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04126963 - N BR BOARDMAN RIVER NEAR SOUTH BOARDMAN,MI. (LAT 44 41 24 LONG 085 22 02 01)												
JUNE, 1971 23...	0910	62	--	--	--	--	--	--	176	0	E5.0	3.0
04126965 - BOARDMAN R AT FORKS CAMP. NR S BOARDMAN,MI. (LAT 44 40 27 LONG 085 23 47 01)												
JUNE, 1971 23...	1100	120	--	--	--	--	--	--	173	0	E5.0	1.5
04126970 - BOARDMAN R AB BROWNS POND NEAR MAYFIELD,MI. (LAT 44 38 52 LONG 085 28 53 01)												
JUNE, 1971 23...	1245	152	--	--	--	--	--	--	168	0	E9.0	1.5
04127735 - JORDAN RIVER AT RIVER RD. NEAR ELMIRA, MI. (LAT 45 03 50 LONG 084 56 51 01)												
JUNE, 1971 23...	1350	17	--	--	--	--	--	--	212	0	E6.0	10
04127740 - JORDAN R AT ROADSIDE PARK NR ELMIRA, MI. (LAT 45 03 07 LONG 084 57 54 01)												
JUNE, 1971 23...	1235	50	--	--	--	--	--	--	207	0	E5.0	1.5
STREAMS TRIBUTARY TO LAKE HURON......................................												
04127960 - STURGEON R AT POQUETTE RD NR VANDERBILT, MI. (LAT 45 04 19 LONG 084 38 27 01)												
JUNE, 1971 24...	1315	26	--	--	--	--	--	--	242	0	E5.0	4.0
04127965 - STURGEON R AT WHITMARSH RD NR VANDERBILT, M. (LAT 45 06 46 LONG 084 35 50 01)												
JUNE, 1971 24...	1205	44	--	--	--	--	--	--	237	0	E.0	5.0
04127970 - STURGEON R AT STURGEON V RD NR VANDERBILT. (LAT 45 08 46 LONG 084 33 41 01)												
JUNE, 1971 24...	1010	51	--	--	--	--	--	--	239	0	E6.0	3.0
04127980 - STURGEON R ABOVE W. BRANCH AT WOLVERINE,MI. (LAT 44 16 17 LONG 084 36 02 01)												
JUNE, 1971 24...	1015	120	--	--	--	--	--	--	229	0	E5.0	2.0
04127990 - W BR STURGEON R AT OLD 27 NR WOLVERINE, MI. (LAT 45 15 19 LONG 084 37 58 01)												
JUNE, 1971 24...	1140	72	--	--	--	--	--	--	232	0	E5.0	1.0
04127997 - W BR STURGEON R AT MOUTH AT WOLVERINE, MI. (LAT 45 16 19 LONG 084 36 04 01)												
JUNE, 1971 24...	1055	72	--	--	--	--	--	--	229	0	E8.1	.0
04128980 - PIGEON R AT OLD VAND. RD NR VANDERVILT, MI. (LAT 45 07 42 LONG 084 30 24 01)												
JUNE, 1971 29...	0835	56	--	--	--	--	--	--	234	1	E8.0	2.0
04128990 - PIGEON R AT STURGEON V. RD NR VANDERBILT, M. (LAT 45 09 24 LONG 084 28 00 01)												
JUNE, 1971 29...	0840	40	--	--	--	--	--	--	239	0	E8.0	2.0
04128995 - PIGEON RIVER NEAR VANDERBILT, MI. (LAT 45 10 00 LONG 084 27 34 01)												
JUNE, 1971 29...	0925	43	--	--	--	--	--	--	232	1	E1.0	1.0
04129005 - PIGEON R AT S F CAMPGND. NR VANDERBILT, MI. (LAT 45 10 40 LONG 084 25 32 01)												
JUNE, 1971 29...	1025	45	--	--	--	--	--	--	237	0	E8.0	1.0

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DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS_SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
04126963 - N BR BOARDMAN RIVER NEAR SOUTH BOARDMAN,MI. (LAT 44 41 24 LONG 085 22 02 01)											
JUNE, 1971 23...	--	E1.5	--	--	147	3	270	8.2	14.5	40	1
04126965 - BOARDMAN R AT FORKS CAMP. NR S BOARDMAN,MI. (LAT 44 40 27 LONG 085 23 47 01)											
JUNE, 1971 23...	--	E1.6	--	--	144	2	275	8.1	14.5	30	0
04126970 - BOARDMAN R AB BROWNS POND NEAR MAYFIELD,MI. (LAT 44 38 52 LONG 085 28 53 01)											
JUNE, 1971 23...	--	E1.2	--	--	144	6	280	7.9	16.0	30	0
04127735 - JORDAN RIVER AT RIVER RD. NEAR ELMIRA, MI. (LAT 45 03 50 LONG 084 56 51 01)											
JUNE, 1971 23...	--	E3.2	--	--	186	12	325	8.2	15.0	15	0
04127740 - JORDAN R AT ROADSIDE PARK NR ELMIRA, MI. (LAT 45 03 07 LONG 084 57 54 01)											
JUNE, 1971 23...	--	E3.5	--	--	179	9	325	8.3	--	15	0
....................................STREAMS TRIBUTARY TO LAKE HURON											
04127960 - STURGEON R AT POQUETTE RD NR VANDERBILT,MI. (LAT 45 04 19 LONG 084 38 27 01)											
JUNE, 1971 24...	--	E2.4	--	--	208	9	380	8.3	14.0	50	0
04127965 - STURGEON R AT WHITMARSH RD NR VANDERBILT,M. (LAT 45 06 46 LONG 084 35 50 01)											
JUNE, 1971 24...	--	E1.4	--	--	192	0	370	8.3	14.5	50	0
04127970 - STURGEON R AT STURGEON V RD NR VANDERBILT. (LAT 45 08 46 LONG 084 33 41 01)											
JUNE, 1971 24...	--	E1.5	--	--	100	0	380	8.3	14.5	10	1
04127980 - STURGEON R ABOVE W. BRANCH AT WOLVERINE,MI. (LAT 44 16 17 LONG 084 36 02 01)											
JUNE, 1971 24...	--	E.5	--	--	204	16	360	8.2	15.5	10	1
04127990 - W BR STURGEON R AT OLD 27 NR WOLVERINE, MI. (LAT 45 15 19 LONG 084 37 58 01)											
JUNE, 1971 24...	--	E1.0	--	--	198	8	355	8.3	14.0	0	0
04127997 - W BR STURGEON R AT MOUTH AT WOLVERINE, MI. (LAT 45 16 19 LONG 084 36 04 01)											
JUNE, 1971 24...	--	E.9	--	--	194	6	340	8.3	14.5	20	0
04128980 - PIGEON R AT OLD VAND. RD VR VANDERVILT, MI (LAT 45 07 42 LONG 084 30 24 01)											
JUNE, 1971 29...	--	E.6	--	--	196	4	370	8.4	17.5	0	0
04128990 - PIGEON R AT STURGEON V. RD NR VANDERBILT,M. (LAT 45 09 24 LONG 084 28 00 01)											
JUNE, 1971 29...	--	E.1	--	--	198	2	360	8.2	21.0	0	0
04128995 - PIGEON RIVER NEAR VANDERBILT, MI. (LAT 45 10 00 LONG 084 27 34 01)											
JUNE, 1971 29...	--	E.0	--	--	196	4	360	8.4	20.5	0	0
04129005 - PIGEON R AT S F CAMPGND. NR VANDERBILT, MI. (LAT 45 10 40 LONG 084 25 32 01)											
JUNE, 1971 29...	--	E.0	--	--	194	0	360	8.3	--	30	0

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04129020 - PIGEON RIVER 9.6 MILES SE OF WOLVERINE, MI. (LAT 45 11 55 LONG 084 26 06 01)												
JUNE, 1971 29...	1225	51	--	--	--	--	--	--	237	0	E8.0	1.5
04129435 - L PIGEON R AT WOLVERINE RD NR WOLVERINE,MI. (LAT 45 16 34 LONG 089 29 55 01)												
JUNE, 1971 29...	--	20	--	--	--	--	--	--	220	1	E7.5	.0
04129450 - PIGEON RIVER AT PIGEON R RD NEAR AFTON, MI. (LAT 45 19 50 LONG 084 29 42 01)												
JUNE, 1971 29...	1000	99	--	--	--	--	--	--	220	1	E8.0	.0
04129510 - PIGEON R 3.5 MILES ABOVE MOUTH NR AFTON,MI. (LAT 45 24 09 LONG 084 32 02 01)												
JUNE, 1971 29...	1105	133	--	--	--	--	--	--	229	0	E5.0	1.0
04130047 - BLACK RIVER 13.4 MILES E OF VANDERBILT, MI. (LAT 45 07 35 LONG 084 23 28 01)												
AUG., 1971 18...	1230	34	--	--	--	--	--	--	--	--	--	--
04135470 - AU SABLE R AT POLLACK BR. NR GRAYLING, MI. (LAT 44 41 06 LONG 084 44 44 01)												
JUNE, 1971 11...	1145	66	--	--	--	--	--	--	200	0	E15	5.0
04135520 - E BR AU SABLE R AT CO RD612 NR GRAYLING,MI. (LAT 44 47 19 LONG 084 35 47 01)												
JUNE, 1971 11...	0835	17	--	--	--	--	--	--	193	0	E5.0	1.0
04135550 - E BR AU SABLE R 7.6 MI. NE OF GRAYLING, MI. (LAT 44 25 26 LONG C84 37 58 01)												
JUNE, 1971 11...	0950	28	--	--	--	--	--	--	200	0	E8.0	2.0
04135560 - E BR AU SABLE R 5.6 MI. NE OF GRAYLING, MI. (LAT 44 43 42 LONG 084 38 35 01)												
JUNE, 1971 11...	1030	40	--	--	--	--	--	--	205	0	E5.0	.0
04135600 - EAST BRANCH AU SABLE RIVER AT GRAYLING, MI. (LAT 44 40 08 LONG 084 42 20 01)												
JUNE, 1971 11...	1300	56	--	--	--	--	--	--	198	0	E9.0	6.0
04135612 - AU SABLE R ABOVE CANOE CAMP NR GRAYLING,MI.(LAT 44 39 57 LONG 084 39 42 01)												
AUG., 1971 19...	1005	127	--	--	--	--	--	--	--	--	--	--
04135614 - AU SABLE R ATBARTONS LNDG NEAR GRAYLING,MI. (LAT 44 39 51 LONG 084 38 52 01)												
JUNE, 1971 11...	1120	179	--	--	--	--	--	--	183	0	E7.0	6.0
04135625 - AU SABLE R AT STEPHENS BR. NR GRAYLING, MI. (LAT 44 40 45 LONG 084 34 39 01)												
JUNE, 1971 11...	1030	236	--	--	--	--	--	--	173	0	E7.0	4.0
04135634 - AU SABLE R AT WAKELY BRIDGE NR GRAYLING,MI. (LAT 44 39 36 LONG 084 30 26 01)												
JUNE, 1971 11...	1205	301	--	--	--	--	--	--	171	0	E.0	5.0
04135685 - S BR AUSABLE R AT DEERHART RD NR ROSCOMMON, (LAT 44 32 21 LONG 084 34 14 01)												
JUNE, 1971 11...	0825	182	--	--	--	--	--	--	144	0	E.0	9.0

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04129020 - PIGEON RIVER 9.6 MILES SE OF WOLVERINE, MI. (LAT 45 11 55 LONG 084 26 06 01)											
JUNE, 1971 29...	--	E.0	--	--	196	2	350	8.3	20.0	20	0
04129435 - L PIGEON R AT WOLVERINE RD NR WOLVERINE, MI. (LAT 45 16 34 LONG 089 29 55 01)											
JUNE, 1971 29...	--	E.0	--	--	182	0	320	8.4	--	50	1
04129450 - PIGEON RIVER AT PIGEON R RD NEAR AFTON, MI. (LAT 45 19 50 LONG 084 29 42 01)											
JUNE, 1971 29...	--	E.0	--	--	184	2	340	8.4	22.0	90	0
04129510 - PIGEON R 3.5 MILES ABOVE MOUTH NR AFTON, MI. (LAT 45 24 09 LONG 084 32 02 01)											
JUNE, 1971 29...	--	E.0	--	--	190	2	340	8.3	23.0	60	0
04130047 - BLACK RIVER 13.4 MILES E OF VANDERBILT, MI. (LAT 45 07 35 LONG 084 23 28 01)											
AUG., 1971 19...	--	E.0	--	--	198	--	350	8.0	16.0	--	--
04135470 - AU SABLE R AT POLLACK BR. NR GRAYLING, MI. (LAT 44 41 06 LONG 084 44 44 01)											
JUNE, 1971 11...	--	E.0	--	--	156	0	280	8.3	16.5	50	0
04135520 - E BR AU SABLE R AT CO RC612 NR GRAYLING, MI. (LAT 44 47 19 LONG 084 35 47 01)											
JUNE, 1971 11...	--	E.0	--	--	150	0	265	7.9	16.0	25	0
04135550 - E BR AU SABLE R 7.6 MI. NE OF GRAYLING, MI. (LAT 44 25 26 LONG 084 37 58 01)											
JUNE, 1971 11...	--	E.9	--	--	162	0	300	8.0	14.0	15	0
04135560 - E BR AU SABLE R 5.6 MI. NE OF GRAYLING, MI. (LAT 44 43 42 LONG 084 38 35 01)											
JUNE, 1971 11...	--	E.9	--	--	166	0	300	8.2	14.0	10	0
04135600 - EAST BRANCH AU SABLE RIVER AT GRAYLING, MI. (LAT 44 40 08 LONG 084 42 20 01)											
JUNE, 1971 11...	--	E.8	--	--	162	0	280	8.3	15.0	35	1
04135612 - AU SABLE R ABOVE CANOE CAMP NR GRAYLING, MI.(LAT 44 39 57 LONG 084 39 42 01)											
AUG., 1971 19...	--	--	--	--	158	--	300	8.0	18.0	--	--
04135614 - AU SABLE R ATRARTONS LNDG NEAR GRAYLING, MI. (LAT 44 39 51 LONG 084 38 52 01)											
JUNE, 1971 11...	--	E.0	--	--	156	6	275	7.8	17.0	40	0
04135625 - AU SABLE R AT STEPHENS BR. NR GRAYLING, MI. (LAT 44 40 45 LONG 084 34 39 01)											
JUNE, 1971 11...	--	E.0	--	--	142	0	260	8.0	14.5	40	0
04135634 - AU SABLE R AT WAKELY BRIDGE NR GRAYLING, MI. (LAT 44 39 36 LONG 084 30 26 01)											
JUNE, 1971 11...	--	E.0	--	--	136	0	250	7.9	15.5	35	0
04135685 - S BR AUSABLE R AT DEERHART RD NR ROSCOMMON, (LAT 44 32 21 LONG 084 34 14 01)											
JUNE, 1971 11...	--	E.3	--	--	120	2	240	7.9	15.5	120	1

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04135687 - S BR AU SABLE R AT CHASE BR. NR ROSCOMMON. (LAT 44 32 27 LONG 084 33 03 01)												
AUG.. 1971 19...	0905	98	--	--	--	--	--	--	--	--	--	--
04135690 - S BR AU SABLE R 6.0 MILES NE OF ROSCOMMON. (LAT 44 33 45 LONG 084 30 21 01)												
JUNE. 1971 11...	1005	221	--	--	--	--	--	--	142	0	E.0	10
04135759 - N BR AU SABLE R AT OLD STATE RD NR WATERS. (LAT 44 54 54 LONG 084 35 54 01)												
JUNE. 1971 11...	0840	16	--	--	--	--	--	--	168	0	E.0	2.0
04135762 - N BR AU SABLE R 7 MILES NW OF LOVELLS. MI. (LAT 44 54 54 LONG 084 34 21 01)												
JUNE. 1971 11...	0855	7.7	--	--	--	--	--	--	124	0	E6.0	2.0
04135765 - N BR AU SABLE R 6.3 MILES NW OF LOVELLS, MI. (LAT 44 53 17 LONG 084 32 33 01)												
JUNE. 1971 11...	1025	79	--	--	--	--	--	--	176	0	E6.0	1.0
04135780 - N BR AU SABLE R 3 MILES N OF LOVELLS. MI. (LAT 44 50 58 LONG 084 29 17 01)												
JUNE. 1971 11...	1120	125	--	--	--	--	--	--	176	0	E5.0	2.0
04135785 - N BR AU SABLE R AT CO RD 612 AT LOVELLS, MI. (LAT 44 48 16 LONG 084 28 55 01)												
JUNE. 1971 11...	0825	161	--	--	--	--	--	--	181	0	E.0	4.0
04135800 - N BR AU SABLE R AT KELLOGS BR NR LOVELLS, M. (LAT 44 43 00 LONG 084 25 11 01)												
JUNE. 1971 11...	0930	204	--	--	--	--	--	--	185	0	E6.0	2.0
04138000 - E BR AU GRES R AT MCIVOR, MI. (LAT 44 14 20 LONG 083 41 50 00)												
AUG., 1971 12...	1140	42	--	--	--	--	--	--	--	--	--	--
STREAMS TRIBUTARY TO ST. CLAIR RIVER..												
04159489 - SILVER CREEK AT YALE RD. NEAR FARGO, MI. (LAT 43 08 04 LONG 082 39 42 01)												
AUG.. 1971 05...	--	.08	--	--	--	--	--	--	237	0	E55	10
04159510 - O'DETTE DRAIN AT KINGSLEY RD NR FARGO, MI. (LAT 43 04 07 LONG 002 38 12 01)												
AUG.. 1971 05...	--	.00	--	--	--	--	--	--	183	0	E125	28
04159860 - MIDDLETON DRAIN AT YALE RD. NEAR YALE. MI. (LAT 43 07 44 LONG 082 50 36 01)												
AUG.. 1971 05...	--	.00	--	--	--	--	--	--	220	0	E65	18
04159875 - LOVEJOY DRAIN AT NORMAN RD. NEAR CAPAC, MI. (LAT 43 05 04 LONG 082 52 36 01)												
AUG.. 1971 05...	--	.00	--	--	--	--	--	--	270	0	E470	9.5
04159893 - MILL CREEK AT WILKES RD. NEAR YALE. MI. (LAT 43 06 03 LONG 082 47 45 01)												
AUG.. 1971 05...	--	1.9	--	--	--	--	--	--	223	0	E80	57
04159895 - SHEEHY DRAIN AT CORNELL RD. NEAR YALE, MI. (LAT 42 05 38 LONG 083 48 22 01)												
AUG., 1971 05...	--	<.01	--	--	--	--	--	--	118	0	E40	890
04159898 - MILL CREEK AT METCALF RD. AT BROCKWAY, MI. (LAT 43 04 22 LONG 082 45 56 01)												
AUG.. 1971 05...	--	1.7	--	--	--	--	--	--	200	0	E70	43

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04135687 - S BR AU SABLE R AT CHASE BR. NR ROSCOMMON, (LAT 44 32 27 LONG 084 33 03 01)											
AUG., 1971 19...	--	--	--	--	156	--	300	7.8	15.0	--	--
04135690 - S BR AU SABLE R 6.0 MILES NE OF ROSCOMMON, (LAT 44 33 45 LONG 084 30 21 01)											
JUNE, 1971 11...	--	E.3	--	--	124	8	240	7.7	15.5	80	0
04135759 - N BR AU SABLE R AT OLD STATE RD NR WATERS, (LAT 44 54 54 LONG 084 35 54 01)											
JUNE, 1971 11...	--	E.0	--	--	140	2	250	7.9	15.5	45	1
04135762 - N BR AU SABLE R 7 MILES NW OF LOVELLS, MI. (LAT 44 54 54 LONG 084 34 21 01)											
JUNE, 1971 11...	--	E.0	--	--	104	2	180	7.6	17.0	80	1
04135765 - N BR AU SABLE R 6.3 MILES NW OF LOVELLS,MI. (LAT 44 53 17 LONG 084 32 33 01)											
JUNE, 1971 11...	--	E.0	--	--	144	0	260	8.1	15.5	60	1
04135780 - N BR AU SABLE R 3 MILES N OF LOVELLS, MI. (LAT 44 50 58 LONG 084 29 17.01)											
JUNE, 1971 11...	--	E.0	--	--	140	0	240	7.8	16.5	40	1
04135785 - N BR AU SABLE R AT CO RD 612 AT LOVELLS,MI. (LAT 44 48 16 LONG 084 28 55 01)											
JUNE, 1971 11...	--	E.0	--	--	146	0	260	8.0	14.5	40	1
04135800 - N BR AU SABLE R AT KELLOGS BR NR LOVELLS, M.(LAT 44 43 00 LONG 084 25 11 01)											
JUNE, 1971 11...	--	E.0	--	--	150	0	265	8.2	14.5	30	0
04138000 - E BR AU GRES R AT MCIVOR, MI. (LAT 44 14 20 LONG 083 41 50 00)											
AUG., 1971 12...	--	--	--	--	190	--	350	7.9	14.5	--	--
....................................STREAMS TRIBUTARY TO ST. CLAIR RIVER											
04159489 - SILVER CREEK AT YALE RD. NEAR FARGO, MI. (LAT 43 08 04 LONG 082 39 42 01)											
AUG., 1971 05...	--	E.0	--	--	240	46	440	7.7	20.0	10	1
04159510 - O'DETTE DRAIN AT KINGSLEY RD NR FARGO, MI. (LAT 43 04 07 LONG 082 38 12 01)											
AUG., 1971 05...	--	E.1	--	--	276	130	570	7.5	--	--	--
04159860 - MIDDLETON DRAIN AT YALE RD. NEAR YALE, MI. (LAT 43 07 44 LONG 082 50 36 01)											
AUG., 1971 05...	--	E.0	--	--	244	64	460	7.6	--	30	2
04159875 - LOVEJOY DRAIN AT NORMAN RD. NEAR CAPAC, MI. (LAT 43 05 04 LONG 082 52 36 01)											
AUG., 1971 05...	--	E.0	--	--	676	460	1050	7.9	--	45	4
04159893 - MILL CREEK AT WILKES RD. NEAR YALE, MI. (LAT 43 06 03 LONG 082 47 45 01)											
AUG., 1971 05...	--	E.1	--	--	256	73	600	7.9	21.0	5	1
04159895 - SHEEHY DRAIN AT CORNELL RD NEAR YALE, MI. (LAT 42 05 38 LONG 083 48 22 01)											
AUG., 1971 05...	--	E.6	--	--	1317	1200	2900	7.7	--	15	1
04159898 - MILL CREEK AT METCALF RD. AT BROCKWAY, MI. (LAT 43 04 22 LONG 082 45 56 01)											
AUG., 1971 05...	--	E.0	--	--	222	58	500	8.2	20.0	30	1

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(NOTE—VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
04159900 - MILL CREEK NEAR AVOCA, MI. (LAT 43 03 16 LONG 082 44 05 01)												
AUG.. 1971 05...	--	2.5	--	--	--	--	--	--	228	0	E70	43
04159950 - MILL CREEK AT KILGORE RD. NEAR AVOCA, MI.. (LAT 43 02 23 LONG 082 41 10 01)												
AUG., 1971 05...	--	3.4	--	--	--	--	--	--	290	0	E2.0	38
04160000 - MILL CREEK NEAR ABBOTTSFORD, MI. (LAT 43 02 42 LONG 082 36 50 01)												
AUG., 1971 05...	--	5.2	--	--	--	--	--	--	261	0	E45	49
04160300 - COWHY DRAIN AT WEBB RD. NEAR GOODELLS, MI. (LAT 42 58 52 LONG 082 42 46 01)												
AUG.. 1971 06...	--	.32	--	--	--	--	--	--	310	0	E1.0	13
04160303 - COWHY DRAIN AT CENTER RD. AT GOODELLS, MI. (LAT 42 58 43 LONG 082 40 50 01)												
AUG., 1971 06...	--	.50	--	--	--	--	--	--	278	0	E1.0	18
04160320 - COWHY DRAIN AT CASTOR RD. AT THORNTON, MI. (LAT 42 58 18 LONG 082 38 15 01)												
AUG.. 1971 05...	--	.76	--	--	--	--	--	--	246	0	E.0	34
04160388 - RATTLE RIVER AT US-25, RATTLE RUN, MI. (LAT 42 51 54 LONG 082 36 08 01)												
AUG., 1971 05...	--	<.01	--	--	--	--	--	--	224	0	E45	113
04160581 - BELLE RIVER AT LYNCH RD. NEAR LESTERVILLE, (LAT 42 57 43 LONG 082 52 27 01)												
AUG., 1971 05...	--	4.7	--	--	--	--	--	--	242	0	E85	86
04160593 - BELLE RIVER AT RILEY CENTER, MI. (LAT 42 56 44 LONG 082 30 31 01)												
AUG., 1971 05...	1400	5.6	--	--	--	--	--	--	254	0	E105	1.0
04160595 - BELLE RIVER NR GILBERT RD. NR MEMPHIS, MI. (LAT 42 55 18 LONG 082 48 37 01)												
AUG.. 1971 05...	--	4.8	--	--	--	--	--	--	251	0	E95	188
04160600 - BELLE RIVER AT MEMPHIS, MI. (LAT 42 54 03 LONG 086 46 09 01)												
AUG., 1971 05...	--	4.9	--	--	--	--	--	--	281	0	E95	154
04160603 - BELLE RIVER AT CAROLL RD. NEAR MEMPHIS, MI. (LAT 42 53 00 LONG 082 44 31 01)												
AUG., 1971 06...	--	6.2	--	--	--	--	--	--	278	0	E80	144
04160612 - BELLE RIVER AT WEBER RD. NEAR MEMPHIS, MI. (LAT 42 52 33 LONG 082 44 29 01)												
AUG., 1971 05...	0915	5.7	--	--	--	--	--	--	256	0	E80	133
04160640 - MARSH DRAIN NEAR BROADBRIDGE STATION, MI. (LAT 42 41 05 LONG 082 31 52 01)												
AUG., 1971 31...	--	<.01	--	--	--	--	--	--	166	0	E200	484
STREAMS TRIBUTARY TO LAKE ST. CLAIR.......................................												
04160645 - BEAUBIEN CREEK NEAR STARVILLE, MI. (LAT 42 40 24 LONG 082 35 15)												
AUG., 1971 31...	--	<.01	--	--	--	--	--	--	161	0	E170	180
04160650 - SWAN CREEK AT MEISNER RD. NEAR PETERS, MI. (LAT 42 45 15 LONG 082 37 38 01)												
AUG.. 1971 31...	--	<.01	--	--	--	--	--	--	127	0	E85	446

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CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
04159900 - MILL CREEK NEAR AVOCA, MI. (LAT 43 03 16 LONG 082 44 05 01)											
AUG., 1971 05...	--	E.1	--	--	246	59	540	8.2	20.0	20	0
04159950 - MILL CREEK AT KILGORE RD. NEAR AVOCA, MI. (LAT 43 02 23 LONG 082 41 10 01)											
AUG., 1971 05...	--	E.1	--	--	274	36	650	8.0	22.0	--	--
04160000 - MILL CREEK NEAR ABBOTTSFORD, MI. (LAT 43 02 42 LONG 082 36 50 01)											
AUG., 1971 05...	--	E.1	--	--	270	56	650	8.0	23.0	--	--
04160300 - COWHY DRAIN AT WEBB RD. NEAR GOODELLS, MI. (LAT 42 58 52 LONG 082 42 46 01)											
AUG., 1971 06...	--	E.0	--	--	266	12	560	7.6	18.0	--	--
04160303 - COWHY DRAIN AT CENTER RD. AT GOODELLS, MI. (LAT 42 58 43 LONG 082 40 50 01)											
AUG., 1971 06...	--	E.0	--	--	264	36	520	7.8	16.0	--	--
04160320 - COWHY DRAIN AT CASTOR RD. AT THORNTON, MI. (LAT 42 58 18 LONG 082 38 15 01)											
AUG., 1971 05...	--	E.1	--	--	206	4	520	7.8	20.0	--	--
04160388 - RATTLE RIVER AT US-25, RATTLE RUN, MI. (LAT 42 51 54 LONG 082 36 08 01)											
AUG., 1971 05...	--	E.9	--	--	298	110	850	7.7	--	--	--
04160581 - BELLE RIVER AT LYNCH RD. NEAR LESTERVILLE, (LAT 42 57 43 LONG 082 52 27 01)											
AUG., 1971 05...	--	E.1	--	--	386	190	1300	8.0	21.0	--	--
04160593 - BELLE RIVER AT RILEY CENTER, MI. (LAT 42 56 44 LONG 082 50 31 01)											
AUG., 1971 05...	--	E.0	--	--	380	170	1300	8.0	21.0	--	--
04160595 - BELLE RIVER NR GILBERT RD. NR MEMPHIS, MI. (LAT 42 55 18 LONG 082 48 37 01)											
AUG., 1971 05...	--	E.1	--	--	358	150	1200	8.3	25.0	--	--
04160600 - BELLE RIVER AT MEMPHIS, MI. (LAT 42 54 03 LONG 086 46 09 01)											
AUG., 1971 05...	--	E.1	--	--	350	120	1100	8.2	23.0	--	--
04160603 - BELLE RIVER AT CAROLL RD. NEAR MEMPHIS, MI. (LAT 42 53 00 LONG 082 44 31 01)											
AUG., 1971 06...	--	E.1	--	--	340	110	1100	8.1	19.0	--	--
04160612 - BELLE RIVER AT WEBER RD. NEAR MEMPHIS, MI. (LAT 42 52 33 LONG 082 44 29 01)											
AUG., 1971 05...	--	E.0	--	--	322	110	1000	8.0	19.0	--	--
04160640 - MARSH DRAIN NEAR BROADBRIDGE STATION, MI. (LAT 42 41 05 LONG 082 31 52 01)											
AUG., 1971 31...	--	E3.5	--	--	1180	1000	2400	7.9	20.0	70	5
..................................STREAMS TRIBUTARY TO LAKE ST. CLAIR											
04160645 - BEAUBIEN CREEK NEAR STARVILLE, MI. (LAT 42 40 24 LONG 082 35 15)											
AUG., 1971 31...	--	E2.5	--	--	384	250	1100	7.2	23.0	70	30
04160650 - SWAN CREEK AT MEISNER RD. NEAR PETERS, MI. (LAT 42 45 15 LONG 082 37 38 01)											
AUG., 1971 31...	--	E5.0	--	--	540	440	2000	7.0	22.0	30	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04160655 - SWANN C. AT ARNOLD RD. NEAR FAIRHAVEN, MI. (LAT 42 42 30 LONG 082 39 05 01)												
AUG., 1971												
31...	--	<.01	--	--	--	--	--	--	149	0	E18	46
04160660 - SWAN CREEK TRIBUTARY NEAR ANCHORVILLE, MI. (LAT 42 41 37 LONG 082 40 06 01)												
AUG., 1971												
31...	--	E.08	--	--	--	--	--	--	124	0	E195	464
04160670 - MARSAC C. AT BETHY RD. AT NEW BALTIMORE, MI. (LAT 42 41 37 LONG 082 42 30 01)												
AUG., 1971												
31...	1020	.06	--	--	--	--	--	--	176	0	E145	220
04160680 - SALT RIVER AT 28-MILE RD. NR NEW HAVEN, MI. (LAT 42 44 59 LONG 082 46 39 01)												
SEP., 1971												
01...	0825	1.8	--	--	--	--	--	--	268	0	E110	129
04160690 - SALT R. AT 24-MILE RD NR NEW BALTIMORE, MI. (LAT 42 41 25 LONG 082 46 02 01)												
SEP., 1971												
01...	--	E.05	--	--	--	--	--	--	195	0	E100	115
04160700 - FISH C. AT 23-MILE RD NR NEW BALTIMORE, MI. (LAT 42 40 31 LONG 082 47 09 01)												
SEP., 1971												
01...	--	E.09	--	--	--	--	--	--	183	0	E115	228
STREAMS TRIBUTARY TO DETROIT RIVER..												
04166650 - JOHNSON D. AT NAPIER RD. NR BROOKVILLE, MICH. (LAT 42 22 54 LONG 083 33 18)												
AUG., 1971												
09...	--	.16	--	--	--	--	--	--	339	0	E30	10
17...	1240	--	15	--	98	24	9.7	1.8	350	0	54	10
04167250 - LWR R. ROUGE AT NAPIER RD. AT CHERRYHILL, MI. (LAT 42 18 38 LONG 083 32 49)												
AUG., 1971												
09...	--	<.01	--	--	--	--	--	--	325	0	E45	50
17...	1330	--	2.4	--	84	41	28	8.7	310	0	94	63
04167350 - FOWLER C. AT RIDGE RD. NEAR WILLOW RUN, MICH. (LAT 42 16 32 LONG 083 33 16)												
AUG., 1971												
09...	--	<.01	--	--	--	--	--	--	215	0	E.1	103
17...	1415	--	1.7	--	52	17	20	3.9	184	0	37	40
04168576 - ECORSE R AT INKSTER RD NEAR INKSTER, MI. (LAT 42 16 12 LONG 083 18 33)												
AUG., 1971												
31...	1015	<.01	--	--	--	--	--	--	154	0	E95	125
04168585 - ECORSE R AT DIX RD AT LINCOLN PARK, MI. (LAT 42 16 08 LONG 083 10 54)												
AUG., 1971												
31...	1210	.33	--	--	--	--	--	--	183	0	E90	330
04168545 - S BR ECORSE R AT HAZEL RD AT LINCOLN PARK, MI. (LAT 42 13 27 LONG 083 11 52)												
AUG., 1971												
31...	1315	1.1	--	--	--	--	--	--	163	0	E90	126
04168655 - FRANK & POET DRAIN AT ALLEN RD AT SOUTHGATE (LAT 42 11 30 LONG 083 13 13)												
AUG., 1971												
31...	1410	.06	--	--	--	--	--	--	198	0	E210	210
04168662 - FRANK & POET DRAIN AT VAN HORN RD AT TRENTON (LAT 42 07 36 LONG 083 12 11)												
AUG., 1971												
31...	1625	.51	--	--	--	--	--	--	154	0	E90	106

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)
04160655 - SWANN C. AT ARNOLD RD. NEAR FAIRHAVEN, MI. (LAT 42 42 30 LONG 082 39 05 01)											
AUG., 1971											
31...	--	E1.3	--	--	178	56	440	7.7	23.0	0	30
04160660 - SWAN CREEK TRIBUTARY NEAR ANCHORVILLE, MI. (LAT 42 41 37 LONG 082 40 06 01)											
AUG., 1971											
31...	--	E1.8	--	--	328	230	950	7.9	20.0	40	12
04160670 - MARSAC C. AT BETHY RD. AT NEW BALTIMORE, MI. (LAT 42 41 37 LONG 082 42 30 01)											
AUG., 1971											
31...	--	E1.2	--	--	994	850	1200	7.8	20.0	40	36
04160680 - SALT RIVER AT 28-MILE RD. NR NEW HAVEN, MI. (LAT 42 44 59 LONG 082 46 39 01)											
SEP., 1971											
01...	--	E42	--	--	344	120	1050	8.1	17.0	30	33
04160690 - SALT R. AT 24-MILE RD NR NEW BALTIMORE, MI. (LAT 42 41 25 LONG 082 46 02 01)											
SEP., 1971											
01...	--	E9.0	--	--	304	140	800	8.0	20.0	110	53
04160700 - FISH C. AT 23-MILE RD NR NEW BALTIMORE, MI. (LAT 42 40 31 LONG 082 47 09 01)											
SEP., 1971											
01...	--	E1.5	--	--	320	170	1250	8.1	18.0	30	12
....................................STREAMS TRIBUTARY TO DETROIT RIVER											
04166650 - JOHNSON D. AT NAPIER RD. NR BROOKVILLE, MICH. (LAT 42 22 54 LONG 083 33 18)											
AUG., 1971											
09...	--	E1.2	--	--	326	48	650	7.6	18.0	--	--
17...	.5	1.7	.000	382	340	52	632	7.7	21.0	5	2
04167250 - LWR R. ROUGE AT NAPIER RD. AT CHERRYHILL, MI. (LAT 42 18 38 LONG 083 32 49)											
AUG., 1971											
09...	--	E1.0	--	--	356	89	800	7.9	22.5	--	--
17...	.6	1.6	.033	522	380	130	900	7.8	21.0	25	4
04167350 - FOWLER C. AT RIDGE RD. NEAR WILLOW RUN, MICH. (LAT 42 16 32 LONG 083 33 16)											
AUG., 1971											
09...	--	E1.6	--	--	266	90	750	7.7	25.0	--	--
17...	.4	.9	.073	291	200	49	476	7.5	22.0	10	15
04168576 - ECORSE R AT INKSTER RD. NEAR INKSTER, MI. (LAT 42 16 12 LONG 083 18 33)											
AUG., 1971											
31...	--	E2.7	--	--	276	150	650	7.7	20.5	90	7
04168585 - ECORSE R AT DIX RD AT LINCOLN PARK, MI. (LAT 42 16 08 LONG 083 10 54)											
AUG., 1971											
31...	--	E1.8	--	--	224	74	1300	8.1	19.5	60	4
04168595 - S BR ECORSE R AT HAZEL RD AT LINCOLN PARK, MI.(LAT 42 13 27 LONG 083 11 52)											
AUG., 1971											
31...	--	E2.6	--	--	226	92	750	7.7	21.0	10	1
04168655 - FRANK & POET DRAIN AT ALLEN RD AT SOUTHGATE,MI(LAT 42 11 30 LONG 083 13 13)											
AUG., 1971											
31...	--	E2.5	--	--	376	214	1200	7.1	20.0	55	35
04168662 - FRANK & POET DR AT VAN HORN RD AT TRENTON, MI.(LAT 42 07 36 LONG 083 12 11)											
AUG., 1971											
31...	--	E3.5	--	--	236	110	700	8.0	21.0	30	4

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04168668 - BROWNSTONE C AT ALLEN RD. NR GIBRALTER, MI. (LAT 42 06 14 LONG 083 13 29)												
AUG., 1971 31...	1655	.08	--	--	--	--	--	--	156	0	E175	227
04168675 - BLAKELY DR AT MIDDLEBELT RD NR ROMULUS, MI. (LAT 42 10 42 LONG 083 19 33)												
AUG., 1971 31...	1455	.07	--	--	--	--	--	--	198	0	E240	62
04168682 - MARSH C AT VREELAND RD NR GIBRALTER, MI. (LAT 42 06 42 LONG 083 13 22)												
AUG., 1971 31...	1545	.73	--	--	--	--	--	--	139	0	E140	122
STREAMS TRIBUTARY TO LAKE ERIE..												
04168800 - HURON RIVER NEAR ANDERSONVILLE, MI. (LAT 42 41 35 LONG 083 29 56)												
AUG., 1971 09...	1130	.10	--	--	--	--	--	--	320	0	E20	4.0
04168900 - HURON RIVER NEAR DRAYTON PLAINS, MI. (LAT 42 39 41 LONG 083 27 09)												
AUG., 1971 09...	1240	.64	--	--	--	--	--	--	120	0	E10	12
04169000 - HAYES CREEK AT COMMERCE, MI. (LAT 42 35 28 LONG 083 28 46)												
AUG., 1971 09...	1440	2.3	--	--	--	--	--	--	251	0	E30	44
04169500 - HURON RIVER AT COMMERCE, MI. (LAT 42 35 25 LONG 083 29 05)												
AUG., 1971 09...	1410	5.3	--	--	--	--	--	--	224	0	E30	34
04169605 - HURON RIVER NEAR MILFORD, MI. (LAT 42 34 22 LONG 083 33 31)												
AUG., 1971 09...	1520	8.2	--	--	--	--	--	--	207	0	E20	34
04169700 - NORTON CREEK NEAR MILFORD, MI. (LAT 42 33 09 LONG 083 33 44)												
AUG., 1971 09...	1555	2.9	--	--	--	--	--	--	298	0	E100	124
04170600 - MANN CREEK NEAR BRIGHTON, MI. (LAT 42 32 19 LONG 083 43 26)												
AUG., 1971 09...	1110	3.0	--	--	--	--	--	--	261	0	E45	124
04170700 - HURON RIVER NEAR GREEN OAK, MI. (LAT 42 44 32 LONG 083 28 57)												
AUG., 1971 09...	1640	36	--	--	--	--	--	--	195	0	E42	39
04170800 - DAVIS CREEK NEAR SOUTH LYON, MI. (LAT 42 29 21 LONG 083 39 11)												
AUG., 1971 09...	1405	.44	--	--	--	--	--	--	266	0	E130	13
04170850 - INCHWAGH LAKE OUTLET AT RUSHTON, MI. (LAT 42 27 10 LONG 083 41 46)												
AUG., 1971 09...	1455	.07	--	--	--	--	--	--	200	0	E240	70
04170900 - TOBIN L OUTLET NR WHITMORE LAKE, MI. (LAT 42 25 47 LONG 083 42 34 01)												
AUG., 1971 09...	1300	<.01	--	--	--	--	--	--	439	0	E.0	12
04171010 - DAVIS CREEK NEAR WHITMORE LAKE, MI. (LAT 42 28 08 LONG 083 44 38)												
AUG., 1971 09...	1545	3.7	--	--	--	--	--	--	229	0	E105	33

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
04168665 - BROWNSTONE C AT ALLEN RD NR GIBRALTER, MI. (LAT 42 06 14 LONG 083 13 29)											
AUG., 1971 31...	--	E4.0	--	--	306	168	1100	8.0	19.5	40	15
04168675 - BLAKELY DR AT MIDDLEBELT RD NR ROMULUS, MI. (LAT 42 10 42 LONG 083 19 33)											
AUG., 1971 31...	--	E2.2	--	--	290	128	--	8.1	20.5	20	11
04168682 - MARSH C AT VREELAND RD NR GIBRALTER, MI. (LAT 42 06 42 LONG 083 13 22)											
AUG., 1971 31...	--	E5.2	--	--	240	126	750	7.7	20.0	50	2
....STREAMS TRIBUTARY TO LAKE ERIE											
04168800 - HURON RIVER NEAR ANDERSONVILLE, MI. (LAT 42 41 35 LONG 083 29 56)											
AUG., 1971 09...	--	E.2	--	--	276	14	500	8.0	24.0	60	0
04168900 - HURON RIVER NEAR DRAYTON PLAINS, MI. (LAT 42 39 41 LONG 083 27 09)											
AUG., 1971 09...	--	E.1	--	--	116	18	240	7.6	23.5	70	3
04169000 - HAYES CREEK AT COMMERCE, MI. (LAT 42 35 28 LONG 083 28 46)											
AUG., 1971 09...	--	E.2	--	--	254	48	550	8.0	23.5	20	1
04169500 - HURON RIVER AT COMMERCE, MI. (LAT 42 35 25 LONG 083 29 05)											
AUG., 1971 09...	--	E.2	--	--	224	40	480	7.9	23.0	0	0
04169605 - HURON RIVER NEAR MILFORD, MI. (LAT 42 34 22 LONG 083 33 31)											
AUG., 1971 09...	--	E.1	--	--	210	40	440	8.0	28.5	20	0
04169700 - NORTON CREEK NEAR MILFORD, MI. (LAT 42 33 09 LONG 083 33 44)											
AUG., 1971 09...	--	E1.1	--	--	358	110	950	7.8	25.5	40	2
04170600 - MANN CREEK NEAR BRIGHTON, MI. (LAT 42 32 19 LONG 083 43 26)											
AUG., 1971 09...	--	E.3	--	--	286	72	800	7.8	22.5	0	1
04170700 - HURON RIVER NEAR GREEN OAK, MI. (LAT 42 44 32 LONG 083 28 57)											
AUG., 1971 09...	--	E1.1	--	--	212	52	480	7.7	25.5	10	1
04170800 - DAVIS CREEK NEAR SOUTH LYON, MI. (LAT 42 29 21 LONG 083 39 11)											
AUG., 1971 09...	--	E1.3	--	--	350	130	600	7.8	22.0	10	7
04170850 - INCHWAGH LAKE OUTLET AT RUSHTON, MI. (LAT 42 27 10 LONG 083 41 46)											
AUG., 1971 09...	--	E.8	--	--	366	200	850	8.0	23.4	50	2
04170900 - Tubin L OUTLET NR WHITEMORE LAKE, MI. (LAT 42 25 47 LONG 083 42 34 01)											
AUG., 1971 09...	--	E3.5	--	--	330	0	700	7.5	--	--	10
04171010 - DAVIS CREEK NEAR WHITMORE LAKE, MI. (LAT 42 28 08 LONG 083 44 38)											
AUG., 1971 09...	--	E.1	--	--	306	120	600	7.9	25.4	20	0

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DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04171500 - ORE CREEK NEAR BRIGHTON, MI. (LAT 42 29 52 LONG 083 48 09)												
AUG., 1971												
10...	1620	1.5	--	--	--	--	--	--	244	0	E20	19
04172050 - O CONNOR DR. NR. WHITMORE L., MI. (LAT 42 23 55 LONG 083 44 46)												
AUG., 1971												
09...	1840	<.01	--	--	--	--	--	--	517	0	E.0	73
04172105 - HORSESHOE LAKE OUTLET NEAR WHITEMORELAKE, MI. (LAT 42 24 56 LONG 083 45 40)												
AUG., 1971												
09...	1825	.02	--	--	--	--	--	--	346	0	E200	101
17...	1530	--	16	--	94	28	64	5.2	224	0	120	130
04172170 - CHILSON CR. AT STATE HWY. 36, MI. (LAT 42 27 58 LONG 083 51 28)												
AUG., 1971												
10...	1355	.69	--	--	--	--	--	--	232	0	E25	7.0
04172200 - ARMS CREEK AT MAST RD. NEAR HAMBURG, MICH. (LAT 42 25 16 LONG 083 52 30)												
AUG., 1971												
10...	1230	1.7	--	--	--	--	--	--	349	0	E70	16
18...	1415	--	13	--	110	24	8.8	3.3	344	0	81	22
04172250 - PORTAGE CR. NR. WILLIAMSVILLE, MI. (LAT 42 25 27 LONG 084 07 09)												
AUG., 1971												
09...	1300	1.1	--	--	--	--	--	--	183	0	E170	34
04172300 - PORTAGE CREEK NEAR UNADILLA, MI. (LAT 42 26 09 LONG 084 05 39)												
AUG., 1971												
09...	1340	1.7	--	--	--	--	--	--	195	0	E95	16
10...	1045	1.1	--	--	--	--	--	--	256	0	E54	60
04172400 - SOUTH LK. OUTLET AT BOYCE RD NR UNADILLA, MI. (LAT 42 24 22 LONG 084 04 42)												
AUG., 1971												
09...	1200	.18	--	--	--	--	--	--	181	0	E20	13
18...	1205	--	15	--	61	20	7.2	1.9	226	0	36	15
04172415 - LIVERMORE CREEK NEAR UNADILLA, MI. (LAT 42 27 37 LONG 084 03 30)												
AUG., 1971												
09...	1450	.10	--	--	--	--	--	--	285	0	E85	13
04172420 - PORTAGE CREEK NEAR CHALKERVILLE, MI. (LAT 42 25 29 LONG 084 00 11)												
AUG., 1971												
09...	1600	2.2	--	--	--	--	--	--	178	0	E70	12
04172500 - PORTAGE RIVER NEAR PINCKNEY, MI. (LAT 42 25 40 LONG 083 57 35)												
AUG., 1971												
09...	1645	1.3	--	--	--	--	--	--	205	0	E50	12
04173000 - HURON R. AT N. TERRITORIAL RD. NR DEXTER, MI. (LAT 42 23 10 LONG 083 54 40)												
AUG., 1971												
10...	1415	47	--	--	--	--	--	--	200	0	E55	31
18...	1315	--	4.1	--	59	18	18	2.1	202	0	50	31
04173150 - MILL CREEK AT MANCHESTER RD. NR SYLVAN, MICH. (LAT 42 15 04 LONG 084 02 01)												
AUG., 1971												
09...	--	2.1	--	--	--	--	--	--	246	0	E35	32
18...	0940	--	12	--	74	21	14	1.4	284	0	34	30

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DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
04171500 - ORE CREEK NEAR BRIGHTON, MI. (LAT 42 29 52 LONG 083 48 09)											
AUG., 1971											
10...	--	E1.8	--	--	222	22	440	7.7	28.0	40	5
04172050 - O'CONNOR DR. NR. WHITMORE L., MI. (LAT 42 23 55 LONG 083 44 46)											
AUG., 1971											
09...	--	--	--	--	396	0	1000	7.9	22.5	--	--
04172105 - HORSESHOE LAKE OUTLET NEAR WHITEMORELAKE, MI. (LAT 42 24 56 LONG 083 45 40)											
AUG., 1971											
09...	--	--	--	--	328	44	950	7.6	23.0	70	0
17...	.2	.3	.037	647	350	170	960	7.7	23.0	20	1
04172170 - CHILSON CR. AT STATE HWY. 36, MI. (LAT 42 27 58 LONG 083 51 28)											
AUG., 1971											
10...	--	E.3	--	--	222	32	390	7.9	--	70	0
04172200 - ARMS CREEK AT MAST RD. NEAR HAMBURG, MICH. (LAT 42 25 16 LONG 083 52 30)											
AUG., 1971											
10...	--	E1.4	--	--	358	72	650	7.6	23.0	0	0
18...	.3	7.2	.044	458	370	88	703	7.6	24.0	15	15
04172250 - PORTAGE CR. NR. WILLIAMSVILLE, MI. (LAT 42 25 27 LONG 084 07 09)											
AUG., 1971											
09...	--	E2.5	--	--	308	160	650	7.0	27.0	70	1
04172300 - PORTAGE CREEK NEAR UNADILLA, MI. (LAT 42 26 09 LONG 084 05 39)											
AUG., 1971											
09...	--	E1.3	--	--	244	84	480	7.0	26.0	80	2
10...	--	E2.1	--	--	286	76	650	7.7	--	30	3
04172400 - SOUTH LK. OUTLET AT BOYCE RD NR UNADILLA, MI. (LAT 42 24 22 LONG 084 04 42)											
AUG., 1971											
09...	--	E.2	--	--	166	18	340	7.5	21.0	10	1
18...	.2	.2	.000	279	230	45	444	7.3	20.0	20	4
04172415 - LIVERMORE CREEK NEAR UNADILLA, MI. (LAT 42 27 37 LONG 084 03 30)											
AUG., 1971											
09...	--	E.7	--	--	304	70	560	7.4	27.0	50	5
04172420 - PORTAGE CREEK NEAR CHALKERVILLE, MI. (LAT 42 25 29 LONG 084 00 11)											
AUG., 1971											
09...	--	E.2	--	--	210	64	420	7.3	28.0	70	0
04172500 - PORTAGE RIVER NEAR PINCKNEY, MI. (LAT 42 25 40 LONG 083 57 35)											
AUG., 1971											
09...	--	E.1	--	--	212	44	420	7.5	28.0	40	0
04173000 - HURON R. AT N. TERRITORIAL RD. NR DEXTER, MI. (LAT 42 23 10 LONG 083 54 40)											
AUG., 1971											
10...	--	E.0	--	--	222	58	470	8.1	27.5	10	1
18...	.2	.2	.008	298	220	54	494	7.9	26.0	10	3
04173150 - MILL CREEK AT MANCHESTER RD. NR SYLVAN, MICH. (LAT 42 15 04 LONG 084 02 01)											
AUG., 1971											
09...	--	E.1	--	--	252	50	500	8.0	23.0	30	0
18...	.3	.1	.005	342	270	37	557	7.9	15.0	5	1

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04173153 - MILL CR. TRIB. NEAR SYLVAN, MI. (LAT 42 13 26 LONG 084 00 10)												
AUG., 1971												
09...	1130	1.4	--	--	--	--	--	--	290	0	E35	16
04173155 - MILL CREEK TRIBUTARY NEAR SYLVAN, MI (LAT 42 14 52 LONG C84 01 48)												
AUG., 1971												
09...	--	2.4	--	--	--	--	--	--	278	0	E65	8.0
04173200 - MILL CR. TRIB. NR. LIMA CENTER, MI. (LAT 42 16 02 LONG 083 55 23)												
AUG., 1971												
10...	0800	.47	--	--	--	--	--	--	310	0	E25	9.0
04173250 - MILL CREEK NEAR LIMA CENTER, MI. (LAT 42 15 56 LONG 083 56 45)												
AUG., 1971												
10...	0900	8.1	--	--	--	--	--	--	288	0	E55	19
04173254 - MILL C. AT JERUSALEM RD. NR LIMA CENTER, MI. (LAT 42 16 53 LONG 083 52 28)												
AUG., 1971												
18...	1555	--	16	--	95	20	11	2.2	348	0	48	16
04173310 - N FORK MILL C. AT MCKINLEY RD NR CHELSEA, MI. (LAT 42 19 54 LONG 084 00 57)												
AUG., 1971												
09...	1445	.45	--	--	--	--	--	--	278	0	E60	22
18...	1115	--	6.4	--	94	27	39	2.7	284	0	64	100
04173320 - LETTS CREEK AT HIGHWAY M-52 AT CHELSEA, MICH. (LAT 42 19 27 LONG 084 01 16)												
AUG., 1971												
09...	--	1.7	--	--	--	--	--	--	276	0	E80	95
18...	1030	--	7.3	--	99	23	39	2.4	265	0	67	100
04173335 - FOURMILE L. OUTLET NR. CHELSEA, MI. (LAT 42 19 25 LONG 083 58 23)												
AUG., 1971												
09...	--	.01	--	--	--	--	--	--	303	0	E60	70
04173343 - N. FORK MILL CR. AT LIMA CENTER, MI. (LAT 42 17 42 LONG 083 57 26)												
AUG., 1971												
09...	1630	2.7	--	--	--	--	--	--	329	0	E90	66
04173347 - N. FK. MILL CR. TRIB. AT LIMA CENTER,(LAT 42 17 22 LONG 083 57 26)												
AUG., 1971												
09...	--	.36	--	--	--	--	--	--	271	0	E75	31
04173350 - N FORK MILL C AT DANCER RD NR LIMA CENTER,MI. (LAT 42 17 46 LONG 083 57 33)												
AUG., 1971												
09...	0800	3.5	--	--	--	--	--	--	329	0	E90	67
19...	0855	--	10	--	100	29	43	4.3	332	0	73	80
04173400 - MILL CR. TRIB. NO. 2 NR. LIMA CENTER,(LAT 42 16 57 LONG 083 54 24)												
AUG., 1971												
10...	0940	.47	--	--	--	--	--	--	332	0	E50	13
04173550 - MILL CREEK AT DEXTER, MI. (LAT 42 17 15 LONG 083 56 14)												
AUG., 1971												
10...	1145	13	--	--	--	--	--	--	310	0	E60	38
04174000 - HURON RIVER AT DEXTER, MI. (LAT 42 20 28 LONG 083 52 48)												
AUG., 1971												
10...	1200	62	--	--	--	--	--	--	251	0	E55	36

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04173153 - MILL CR. TRIB. NEAR SYLVAN, MI. (LAT 42 13 26 LONG 084 00 10)											
AUG., 1971											
09...	--	E.0	--	--	268	30	480	7.9	20.5	10	0
04173155 - MILL CREEK TRIBUTARY NEAR SYLVAN, MI (LAT 42 14 52 LONG 084 01 48)											
AUG., 1971											
09...	--	E.1	--	--	286	58	520	8.0	23.5	30	2
04173200 - MILL CR. TRIB. NR. LIMA CENTER, MI. (LAT 42 16 02 LONG 083 55 23)											
AUG., 1971											
10...	--	E.1	--	--	274	20	480	7.8	20.5	10	1
04173250 - MILL CREEK NEAR LIMA CENTER, MI. (LAT 42 15 56 LONG 083 56 45)											
AUG., 1971											
10...	--	E.1	--	--	292	56	540	7.8	22.0	30	0
04173254 - MILL C. AT JERUSALEM RD. NR LIMA CENTER, MI. (LAT 42 16 53 LONG 083 52 28)											
AUG., 1971											
18...	.5	.1	.068	385	320	34	623	7.8	34.5	15	10
04173310 - N FORK MILL C. AT MCKINLEY RD NR CHELSEA, MI. (LAT 42 19 54 LONG 084 00 57)											
AUG., 1971											
09...	--	E.2	--	--	302	74	560	7.8	23.0	0	0
18...	.3	.1	.033	503	340	110	841	7.9	21.0	10	2
04173320 - LETTS CREEK AT HIGHWAY M-52 AT CHELSEA, MICH. (LAT 42 19 27 LONG 084 01 16)											
AUG., 1971											
09...	--	E.2	--	--	340	110	800	8.1	25.0	0	0
18...	.3	.1	.010	506	340	120	840	7.8	19.0	10	1
04173335 - FOURMILE L. OUTLET NR. CHELSEA, MI. (LAT 42 19 25 LONG 083 58 23)											
AUG., 1971											
09...	--	E.1	--	--	391	142	850	7.7	14.0	60	2
04173343 - N. FORK MILL CR. AT LIMA CENTER, MI. (LAT 42 17 42 LONG 083 57 26)											
AUG., 1971											
09...	--	E2.4	--	--	368	98	800	8.3	21.5	40	4
04173347 - N. FK. MILL CR. TRIB. AT LIMA CENTER,(LAT 42 17 22 LONG 083 57 26)											
AUG., 1971											
09...	--	E.2	--	--	312	90	600	7.8	23.5	60	3
04173350 - N FORK MILL C AT DANCER RD NR LIMA CENTER,MI. (LAT 42 17 46 LONG 083 57 33)											
AUG., 1971											
09...	--	E1.8	--	--	360	90	800	8.0	23.5	0	5
19...	.5	6.0	.360	568	370	96	869	7.6	17.0	10	2
04173400 - MILL CR. TRIB. NO. 2 NR. LIMA CENTER,(LAT 42 16 57 LONG 083 54 24)											
AUG., 1971											
10...	--	E.1	--	--	310	120	560	7.8	21.0	10	0
04173550 - MILL CREEK AT DEXTER, MI. (LAT 42 17 15 LONG 083 56 14)											
AUG., 1971											
10...	--	E.6	--	--	316	62	650	7.3	24.0	20	0
04174000 - HURON RIVER AT DEXTER, MI. (LAT 42 20 28 LONG 083 52 48)											
AUG., 1971											
10...	--	E1.4	--	--	264	58	560	8.0	25.0	10	1

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04174048 - HURON RIVER TRIB. AT DELHI MILLS, MI. (LAT 42 19 58 LONG 083 49 07)												
AUG.. 1971												
10...	1100	.95	--	--	--	--	--	--	273	0	E105	27
04174050 - HURON RIVER AT DELHI RD. AT DELHI MILLS, MI. (LAT 42 20 01 LONG 083 48 04)												
AUG.. 1971												
19...	0915	--	5.2	--	72	18	19	2.4	244	0	50	38
04174290 - HONEY CREEK AT I-94 NR. SCIO, MI. (LAT 42 17 24 LONG 083 50 05)												
AUG.. 1971												
10...	0900	.21	--	--	--	--	--	--	295	0	E64	49
04174300 - HONEY CREEK NEAR FOSTER, MI. (LAT 42 18 34 LONG 083 48 28)												
AUG.. 1971												
10...	1020	1.6	--	--	--	--	--	--	285	0	E65	46
04174500 - HURON RIVER AT WALL STREET AT ANN ARBOR, MI. (LAT 42 17 10 LONG 083 44 00)												
AUG.. 1971												
10...	1120	66	--	--	--	--	--	--	224	0	E90	40
17...	0850	--	6.8	--	79	17	25	3.0	248	0	57	51
04174510 - ALLEN CREEK AT ISLAND DRIVE AT ANN ARBOR, MI. (LAT 42 17 51 LONG 083 43 54)												
AUG.. 1971												
10...	1115	.22	--	--	--	--	--	--	283	0	E96	62
17...	0935	--	10	--	98	30	28	3.3	326	0	74	68
04174518 - PITTSFIELD D. AT HURON R. DR. AT ANNARBOR,MI. (LAT 42 15 54 LONG 083 41 10)												
AUG.. 1971												
10...	0900	2.3	--	--	--	--	--	--	312	0	E135	77
17...	0820	--	12	--	100	25	49	5.5	298	0	98	74
04174680 - FLEMING C. AT DIXBORO, MI. (LAT 42 19 06 LONG 083 38 18)												
AUG.. 1971												
10...	--	.11	--	--	--	--	--	--	256	0	E52	40
04174690 - FLEMING CR. TRIB. AT DIXBORO, MI. (LAT 42 19 03 LONG 083 38 46)												
AUG.. 1971												
10...	--	.46	--	--	--	--	--	--	300	0	E50	48
04174695 - FLEMING CREEK AT GALE ROAD AT DIXBORO, MICH. (LAT 42 18 29 LONG 083 39 23)												
AUG.. 1971												
17...	1150	--	12	--	78	24	23	2.5	300	0	39	42
04174710 - FLEMING CREEK NEAR GEDDES, MI. (LAT 42 16 23 LONG 083 40 02)												
AUG.. 1971												
10...	0940	3.3	--	--	--	--	--	--	281	0	E44	37
04174800 - HURON R. AT MICHIGAN AVE. AT YPSILANTI, MICH. (LAT 42 14 27 LONG 083 36 43)												
AUG.. 1971												
10...	0915	105	--	--	--	--	--	--	215	0	E75	53
17...	0950	--	7.6	--	70	21	34	4.3	222	0	69	54
04174900 - FORD LAKE AT FORD DAM NEAR RAWSONVILLE, MICH. (LAT 42 12 22 LONG 083 33 23)												
AUG.. 1971												
18...	0900	--	4.0	--	71	19	30	3.8	210	0	69	52
04175010 - HURON RIVER AT BELLEVILLE, MI. (LAT 42 12 38 LONG 083 26 06)												
AUG.. 1971												
09...	1500	311	--	--	--	--	--	--	190	0	E60	48

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(NOTE--VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
04174048 - HURON RIVER TRIB. AT DELHI MILLS, MI. (LAT 42 19 58 LONG 083 49 07)											
AUG., 1971											
10...	--	E2.4	--	--	322	98	600	7.8	23.0	0	6
04174050 - HURON RIVER AT DELHI RD. AT DELHI MILLS, MI. (LAT 42 20 01 LONG 083 48 04)											
AUG., 1971											
19...	1.3	.5	.065	345	250	50	571	7.6	22.0	10	2
04174290 - HONEY CREEK AT I-94 NR. SCIO, MI. (LAT 42 17 24 LONG 083 50 05)											
AUG., 1971											
10...	--	E.2	--	--	310	68	650	7.8	19.0	20	0
04174300 - HONEY CREEK NEAR FOSTER, MI. (LAT 42 18 34 LONG 083 48 28)											
AUG., 1971											
10...	--	E.3	--	--	312	78	650	7.7	22.5	0	1
04174500 - HURON RIVER AT WALL STREET AT ANN ARBOR, MI. (LAT 42 17 10 LONG 083 44 00)											
AUG., 1971											
10...	--	E.2	--	--	258	74	550	7.4	27.0	30	7
17...	.4	.2	.030	381	270	66	620	7.6	21.0	15	20
04174510 - ALLEN CREEK AT ISLAND DRIVE AT ANN ARBOR, MI. (LAT 42 17 51 LONG 083 43 54)											
AUG., 1971											
10...	--	E.9	--	--	334	100	750	7.6	26.5	10	2
17...	.3	2.2	.039	519	370	100	810	7.8	19.5	5	1
04174518 - PITTSFIELD D. AT HURON R. DR. AT ANNARBOR,MI. (LAT 42 15 54 LONG 083 41 10)											
AUG., 1971											
10...	--	E.1	--	--	392	140	850	7.5	20.0	0	0
17...	.7	2.4	.080	557	350	100	843	7.8	15.5	25	1
04174680 - FLEMING C. AT DIXBORO, MI. (LAT 42 19 06 LONG 083 38 18)											
AUG., 1971											
10...	--	E10	--	--	298	88	580	7.6	10.5	20	1
04174690 - FLEMING CR. TRIB. AT DIXBORO, MI. (LAT 42 19 03 LONG 083 38 46)											
AUG., 1971											
10...	--	E1.9	--	--	312	66	650	7.7	16.5	10	1
04174695 - FLEMING CREEK AT GALE ROAD AT DIXBORO, MICH. (LAT 42 18 29 LONG 083 39 23)											
AUG., 1971											
17...	.4	.7	.000	376	290	44	644	7.7	21.0	5	7
04174710 - FLEMING CREEK NEAR GEDDES, MI. (LAT 42 16 23 LONG 083 40 02)											
AUG., 1971											
10...	--	E.2	--	--	284	53	580	7.8	22.0	60	1
04174800 - HURON R. AT MICHIGAN AVE. AT YPSILANTI, MICH. (LAT 42 14 27 LONG 083 36 43)											
AUG., 1971											
10...	--	E13	--	--	250	74	600	7.2	--	0	5
17...	.5	15	.570	396	260	78	653	7.4	23.5	5	3
04174900 - FORD LAKE AT FORD DAM NEAR RAWSONVILLE, MICH. (LAT 42 12 22 LONG 083 33 23)											
AUG., 1971											
18...	.5	6.0	.320	377	260	88	624	7.5	23.0	15	1
04175010 - HURON RIVER AT BELLEVILLE, MI. (LAT 42 12 38 LONG 083 26 06)											
AUG., 1971											
09...	--	E6.5	--	--	224	68	540	7.5	25.0	0	0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
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DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04175020 - GRIGGS DRAIN NEAR BELLEVILLE, MI. (LAT 42 11 01 LONG 083 26 15)												
AUG., 1971												
09...	1420	.12	--	--	--	--	--	--	151	0	E50	83
04175500 - HURON RIVER AT FLAT ROCK, MI. (LAT 42 05 38 LONG 083 17 43)												
AUG., 1971												
09...	1210	45	--	--	--	--	--	--	198	0	E70	50
04175503 - SILVER CREEK AT ROCKWOOD, MI. (LAT 42 03 34 LONG 083 13 27)												
AUG., 1971												
09...	1340	.53	--	--	--	--	--	--	137	0	E105	24
04175507 - BRADSHAW DRAIN NEAR OAKVILLE, MI. (LAT 42 05 09 LONG 083 30 49)												
SEP., 1971												
01...	1030		--	--	--	--	--	--	188	0	E95	31
04175508 - N. BR. SWAN C AT CARLETON DR. AT WALTZ, MI. (LAT 42 05 37 LONG 083 23 02.01)												
AUG., 1971												
05...	1230	.01	--	--	--	--	--	--	249	0	E130	190
04175509 - DISBROW DR AT CARLETON W RD NR CARLETON (LAT 42 05 05 LONG 083 25 53)												
SEP., 1971												
01...	0945	.08	--	--	--	--	--	--	172	0	E110	87
04175512 - SWAN C AT GRAFTON RD NR CARLETON, MI. (LAT 42 04 22 LONG 083 22 52)												
SEP., 1971												
01...	1035	.08	--	--	--	--	--	--	176	0	E85	84
04175516 - L SWAN C AT SWEITZER RD NR CARLETON, MI. (LAT 42 02 28 LONG 083 20 45)												
SEP., 1971												
01...	0950	<.01	--	--	--	--	--	--	178	0	E600	52
04175517 - SWAN C AT BRANDON RD AT NEWPORT, MI. (LAT 42 00 12 LONG 083 18 02)												
AUG., 1971												
31...	--	<.01	--	--	--	--	--	--	173	0	E750	135
04175520 - STONY CREEK AT WILLOW RD. NEAR OAKVILLE, MI. (LAT 42 06 48 LONG 083 36 30)												
AUG., 1971												
10...	1045	1.05	--	--	--	--	--	--	210	0	E50	60
17...	1115	--	10	--	91	21	30	2.7	300	0	48	66
31...	1105	.87	--	--	--	--	--	--	237	0	E55	64
04175525 - SUGAR CREEK AT FULLER RD. NEAR OAKVILLE, MI. (LAT 42 05 54 LONG 083 36 31)												
AUG., 1971												
17...	1155	--	3.0	--	73	20	14	4.7	230	0	63	34
04175533 - PAINT CREEK NEAR LINCOLN, MI. (LAT 42 11 18 LONG 083 36 25)												
AUG., 1971												
10...	1000	3.2	--	--	--	--	--	--	271	0	E51	17
31...	1020	2.7	--	--	--	--	--	--	205	0	E70	16
04175538 - PAINT CREEK AT LISS ROAD AT OAKVILLE, MI. (LAT 42 05 44 LONG 083 36 30)												
AUG., 1971												
10...	1130	1.5	--	--	--	--	--	--	227	0	E65	16
17...	1255	--	6.8	--	77	19	5.7	2.0	252	0	59	16
31...	1205	1.9	--	--	--	--	--	--	222	0	E65	14

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04175020 - GRIGGS DRAIN NEAR BELLEVILLE, MI. (LAT 42 11 01 LONG 083 26 15)											
AUG., 1971											
09...	—	E1.2	--	--	238	110	570	7.7	28.0	30	0
04175500 - HURON RIVER AT FLAT ROCK, MI. (LAT 42 05 38 LONG 083 17 43)											
AUG., 1971											
09...	—	E1.5	--	--	230	68	540	7.6	26.5	40	0
04175503 - SILVER CREEK AT ROCKWOOD, MI. (LAT 42 03 34 LONG 083 13 27)											
AUG., 1971											
09...	—	E.3	--	--	224	110	520	7.8	26.5	10	10
04175507 - BRADSHAW DRAIN NEAR OAKVILLE, MI. (LAT 42 05 09 LONG 083 30 49)											
SEP., 1971											
01...	--	E.1	--	--	258	104	540	7.6	18.0	0	0
04175508 - N. BR. SWAN C. AT CARLETON DR. AT WALTZ, MI. (LAT 42 05 37 LONG 083 23 02.01)											
AUG., 1971											
05...	--	E2.0	--	--	286	82	1500	8.1	17.5	35	0
04175509 - DISBROW DR AT CARLETON-W RD NR CARLETON, MI. (LAT 42 05 05 LONG 083 25 53)											
SEP., 1971											
01...	--	E2.3	--	--	300	172	750	8.0	--	60	7
04175512 - SWAN C AT GRAFTON RD NR CARLETON, MI. (LAT 42 04 22 LONG 053 22 52)											
SEP., 1971											
01...	--	E5.5	--	--	220	76	500	7.1	--	20	4
04175516 - L SWAN C AT SWEITZER RD NR CARLETON, MI. (LAT 42 02 28 LONG 083 20 45)											
SEP., 1971											
01...	--	E1.8	--	--	882	736	1500	8.1	--	40	6
04175517 - SWAN C AT BRANDON RD AT NEWPORT, MI. (LAT 42 00 12 LONG 083 18 02)											
AUG., 1971											
31...	--	E5.5	--	--	1060	918	2000	7.8	21.0	25	13
04175520 - STONY CREEK AT WILLOW RD. NEAR OAKVILLE, MI. (LAT 42 06 48 LONG 083 36 30)											
AUG., 1971											
10...	--	E2.1	--	--	286	76	650	7.7	--	30	3
17...	.2	3.2	.023	426	310	64	718	7.9	20.0	5	1
31...	--	E2.2	--	--	264	70	600	8.0	20.0	10	3
04175525 - SUGAR CREEK AT FULLER RD. NEAR OAKVILLE, MI. (LAT 42 05 54 LONG 083 36 31)											
AUG., 1971											
17...	.1	.1	.046	359	260	71	564	7.7	18.5	20	6
04175533 - PAINT CREEK NEAR LINCOLN, MI. (LAT 42 11 18 LONG 083 36 25)											
AUG., 1971											
10...	--	E.2	--	--	296	74	540	7.6	--	0	1
31...	--	E.3	--	--	244	76	440	7.7	18.0	0	0
04175538 - PAINT CREEK AT LISS ROAD AT OAKVILLE, MI. (LAT 42 05 44 LONG 083 36 30)											
AUG., 1971											
10...	--	E.1	--	--	258	72	490	7.7	21.0	20	2
17...	.3	.3	.020	349	270	63	528	7.8	20.0	5	6
31...	--	E.2	--	--	256	74	460	7.7	19.0	5	3

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DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04175550 - STONY C. AT TUTTLE HILL RD AT OAKVILLE, MI. (LAT 42 05 05 LONG 083 34 43.01)												
AUG., 1971 09...	1215	4.0	--	--	--	--	--	--	229	0	E60	37
31...	1315	2.9	--	--	--	--	--	--	242	0	E72	31
04175555 - STONY C. AT RAWSONVILLE RD. NR MAYBEE, MI. (LAT 42 03 52 LONG 083 32 22.01)												
AUG., 1971 05...	1130	2.8	--	--	--	--	--	--	246	0	E70	40
04175557 - STONY C AT TIMBERS RD NR MAYBEE, MI. (LAT 42 02 56 LONG 083 30 38)												
AUG., 1971 31...	1515	2.6	--	--	--	--	--	--	237	0	E80	32
04175562 - STONY C. AT EXTER RD. NEAR CARLETON, MI. (LAT 43 25 00 LONG 083 25 10.01)												
AUG., 1971 05...	1410	3.1	--	--	--	--	--	--	229	0	--	28
SEP., 01...	0915	3.0	--	--	--	--	--	--	242	0	E90	32
04175564 - STONY C AT MENTEL RD NR NEWPORT, MI. (LAT 41 57 50 LONG 083 20 22)												
AUG., 1971 31...	1330	2.0	--	--	--	--	--	--	212	0	E105	37
04175565 - SANDY CREEK AT MONROE ST. NEAR MONROE, MI. (LAT 41 57 32 LONG 083 22 37.01)												
AUG., 1971 05...	--	<.01	--	--	--	--	--	--	256	0	E1400	33
04175567 - LITTLE SANDY C AT MONROE ST. NR MONROE, MI. (LAT 41 56 56 LONG 083 22 58.01)												
AUG., 1971 05...	--	<.01	--	--	--	--	--	--	283	0	E1150	125
31...	--	.01	--	--	--	--	--	--	271	0	E550	180
04175568 - SANDY C AT N DIXIE HWY NR MONROE, MI. (LAT 41 56 55 LONG 083 18 34)												
AUG., 1971 31...	--	<.01	--	--	--	--	--	--	176	0	E110	62
04175597 - R. RAISIN AT SHARON V. RD. NR SHARONVILLE, MI. (LAT 42 10 04 LONG 084 07 21)												
AUG., 1971 09...	1250	12	--	--	--	--	--	--	229	0	E25	13
19...	1115	--	10	--	58	21	7.5	1.7	240	0	30	16
04175598 - R. RAISIN TRIB. AT SHARONVILLE, MI. (LAT 42 10 42 LONG 084 06 21)												
AUG., 1971 09...	--	<.0	--	--	--	--	--	--	410	0	E60	10
04175600 - RIVER RAISIN NR. MANCHESTER, MI. (LAT 42 10 05 LONG 084 04 34)												
AUG., 1971 09...	1330	12	--	--	--	--	--	--	234	0	E27	14
04175610 - RIVER RAISIN AT AUSTIN RD. NR MANCHESTER, MI. (LAT 42 09 00 LONG 084 01 26)												
AUG., 1971 10...	1120	20	--	--	--	--	--	--	237	0	E32	16
19...	0950	--	9.0	--	60	22	9.1	1.9	250	0	34	18
04175620 - R. RAISIN TRIB. NR. MANCHESTER, MI. (LAT 42 08 38 LONG 083 59 18)												
AUG., 1971 10...	1025	.57	--	--	--	--	--	--	242	0	E35	6.0
04175625 - RIVER RAISIN AT RAISIN BASIN, MI. (LAT 42 07 20 LONG 083 58 56)												
AUG., 1971 10...	0925	19	--	--	--	--	--	--	242	0	E35	16

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DATE	DISSOLVED FLUORIDE (F) (MG/L)	DIS_SCLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
04175550 - STONY C. AT TUTTLE HILL RD AT OAKVILLE, MI. (LAT 42 05 05 LONG 083 34 43 01)											
AUG., 1971											
09...	--	E.4	--	--	258	70	540	7.7	--	20	4
31...	--	E1.1	--	--	274	76	530	8.0	19.0	10	0
04175555 - STONY C. AT RAWSCNVILLE RD NR MAYBEE, MI. (LAT 42 03 52 LONG 083 32 22 01)											
AUG., 1971											
05...	--	E.4	--	--	275	73	560	8.1	17.5	15	0
04175557 - STONY C AT TIMBERS RD NR MAYBEE, MI. (LAT 42 02 56 LONG 083 30 38)											
AUG., 1971											
31...	--	E1.1	--	--	276	82	540	8.0	--	70	15
04175562 - STONY C. AT EXTER RD NEAR CARLETON, MI. (LAT 43 25 00 LONG 083 25 10 01)											
AUG., 1971											
05...	--	E.0	--	--	318	130	610	7.9	21.0	15	1
SEP.,											
01...	--	E.7	--	--	290	100	600	7.2	--	25	45
04175564 - STONY C AT MENTEL RD NR NEWPORT, MI. (LAT 41 57 50 LONG 083 20 22)											
AUG., 1971											
31...	--	E2.3	--	--	318	144	600	8.2	21.5	70	23
04175565 - SANDY CREEK AT MONROE ST. NEAR MONROE, MI. (LAT 41 57 32 LONG 083 22 37 01)											
AUG., 1971											
05...	--	E.9	--	--	1800	1600	2400	7.6	--	25	3
04175567 - LITTLE SANDY C. AT MONROE ST. NR MONROE, MI. (LAT 41 56 56 LONG 083 22 58 01)											
AUG., 1971											
05...	--	E.4	--	--	1604	1400	2400	7.5	16.0	0	1
31...	--	E10	--	--	872	222	1900	8.1	18.0	10	4
04175568 - SANDY C AT N DIXIE HWY NR MONROE, MI. (LAT 41 56 55 LONG 083 18 34)											
AUG., 1971											
31...	--	E6.8	--	--	258	114	650	8.0	21.0	20	3
04175597 - R. RAISIN AT SHARON V. RD NR SHARONVILLE,MI. (LAT 42 10 04 LCNG 084 07 21)											
AUG., 1971											
09...	--	E2.0	--	--	220	32	420	7.7	23.0	10	0
19...	.3	1.7	.023	268	230	34	455	7.7	21.5	10	2
04175598 - R. RAISIN TRIB. AT SHARONVILLE, MI. (LAT 42 10 42 LONG 084 06 21)											
AUG., 1971											
09...	--	E3.5	--	--	402	66	700	7.8	--	40	5
04175600 - RIVER RAISIN NR. MANCHESTER, MI. (LAT 42 10 05 LONG 084 04 34)											
AUG., 1971											
09...	--	E1.2	--	--	222	30	440	7.2	23.5	0	3
04175610 - RIVER RAISIN AT AUSTIN RD NR MANCHESTER, MI. (LAT 42 09 00 LCNG 084 01 26)											
AUG., 1971											
10...	--	E2.7	--	--	238	44	460	7.9	24.5	0	3
19...	.6	2.8	.13	283	240	35	472	7.5	22.0	10	3
04175620 - R. RAISIN TRIB. NR. MANCHESTER, MI. (LAT 42 08 38 LONG 083 59 18)											
AUG., 1971											
10...	--	E.1	--	--	236	37	420	7.7	22.0	10	6
04175625 - RIVER RAISIN AT RAISIN BASIN, MI. (LAT 42 07 20 LONG 083 58 56)											
AUG., 1971											
10...	--	E1.0	--	--	234	35	460	8.0	23.5	20	2

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DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
04175630 - RIVER RAISIN AT ALLEN RD. NEAR CLINTON, MICH. (LAT 42 05 36 LONG 083 58 35)												
AUG., 1971												
01...	1700	25	--	--	--	--	--	--	254	0	E30	19
19...	0845	--	8.4	--	70	21	8.7	2.0	266	0	40	16
04175640 - IRON CREEK AT IRON MILLS POND, MI. (LAT 42 06 02 LONG 084 10 08)												
AUG., 1971												
09...	1435	1.3	--	--	--	--	--	--	129	0	E20	13
04175650 - IRON CREEK AT BARTLETT ROAD NR CLINTON, MICH. (LAT 42 05 37 LONG 083 59 17)												
AUG., 1971												
19...	0815	--	14	--	70	18	6.6	1.7	278	0	34	7.5
04175700 - RIVER RAISIN NEAR TECUMSEH, MI. (LAT 41 56 35 LONG 083 56 45)												
AUG., 1971												
10...	0815	35	--	--	--	--	--	--	273	0	E52	32
04176010 - RIVER RAISIN NEAR BLISSFIELD, MICH. (LAT 41 49 39 LONG 083 55 33.01)												
AUG., 1971												
05...	1800	53	--	--	--	--	--	--	254	0	E90	44
04176220 - M. BRANCH MACON R. NR. BRITTON, MI. (LAT 42 01 11 LONG 083 49 51)												
AUG., 1971												
10...	1100	14	--	--	--	--	--	--	322	0	E68	36
04176345 - SALINE RIVER NEAR RAISIN BASIN, MI. (LAT 42 07 34 LONG 083 54 56)												
AUG., 1971												
10...	1300	.55	--	--	--	--	--	--	293	0	E105	18
04176350 - SALINE RIVER AT FELDKAMP ROAD AT BENTON, MI. (LAT 42 08 18 LONG 083 52 08)												
AUG., 1971												
10...	1350	1.4	--	--	--	--	--	--	264	0	E105	14
18...	1450	11	15	--	110	26	7.7	1.5	294	0	140	18
04176355 - SALINE R. TRIB. NR. BENTON, MI. (LAT 42 09 38 LONG 083 51 01)												
AUG., 1971												
10...	1445	.27	--	--	--	--	--	--	303	0	E85	13
04176365 - SALINE RIVER AT DELL ROAD ABOVE SALINE, MICH. (LAT 42 10 16 LONG 083 49 32)												
AUG., 1971												
18...	1350	--	12	--	110	28	10	2.3	320	0	120	18
04176370 - SALINE R. TRIB. AT SALINE WW RD NR SALINE,MI. (LAT 42 10 34 LONG 083 49 17)												
AUG., 1971												
10...	1520	.17	--	--	--	--	--	--	256	0	E90	15
18...	1300	--	11	--	90	27	8.8	2.8	306	0	78	17
04176380 - SALINE R. TRIB. NO. 2 AT SALINE, MI. (LAT 42 10 37 LONG 083 47 17)												
AUG., 1971												
10...	1545	<.01	--	--	--	--	--	--	222	0	E100	30
04176390 - SALINE RIVER AT SALINE, MI. (LAT 42 09 35 LONG 083 47 01)												
AUG., 1971												
09...	1200	6.9	--	--	--	--	--	--	281	0	E150	32
04176399 - KOCH-WARNER D AT SALINE-MILAN RD AT SALINE,M. (LAT 42 09 22 LONG 083 46 29)												
AUG., 1971												
09...	1315	3.5	--	--	--	--	--	--	268	0	E105	20
18...	1135	--	12	--	100	26	7.2	2.1	306	0	99	22

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(NOTE--VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS_SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	
04175630 - RIVER RAISIN AT ALLEN RD. NEAR CLINTON, MICH. (LAT 42 05 36 LCNG 083 58 35)												
AUG., 1971												
01...	--	E.6	--	--	244	36	440	7.6	24.5	50	0	
19...	.4	.8	.068	306	260	42	512	7.4	20.0	15	15	12
04175640 - IRON CREEK AT IRON MILLS POND, MI. (LAT 42 06 02 LONG 084 10 08)												
AUG., 1971												
09...	--	E.2	--	--	134	28	280	7.5	27.0	40	0	
04175650 - IRON CREEK AT BARTLETT ROAD NR CLINTON, MICH. (LAT 42 05 37 LONG 083 59 17)												
AUG., 1971												
19...	.5	.1	.005	292	250	22	486	7.7	15.5	5	4	
04175700 - RIVER RAISIN NEAR TECUMSEH, MI. (LAT 41 56 35 LONG 083 56 45)												
AUG., 1971												
10...	--	E11	--	--	286	62	600	7.8	22.0	20	10	
04176010 - RIVER RAISIN NEAR BLISSFIELD, MICH. (LAT 41 49 39 LONG 083 55 33.01)												
AUG., 1971												
05...	--	E11	--	--	282	74	650	7.7	21.0	10	0	
04176220 - M. BRANCH MACON R. NR. BRITTON, MI. (LAT 42 01 11 LONG 083 49 51)												
AUG., 1971												
10...	--	E1.1	--	--	328	64	650	7.6	23.5	10	0	
04176345 - SALINE RIVER NEAR RAISIN BASIN, MI. (LAT 42 07 34 LONG 083 54 56)												
AUG., 1971												
10...	--	E.1	--	--	366	130	650	7.8	22.0	20	3	
04176350 - SALINE RIVER AT FELDKAMP ROAD AT BENTON, MI. (LAT 42 08 18 LONG 083 52 08)												
AUG., 1971												
10...	--	E.2	--	--	342	130	650	7.8	25.5	40	0	
18...	.3	.0	.000	493	380	140	723	7.8	26.0	10	6	
04176355 - SALINE R. TRIB. NR. BENTON, MI. (LAT 42 09 38 LONG 083 51 01)												
AUG., 1971												
10...	--	E.3	--	--	314	65	600	7.9	26.5	30	7	
04176365 - SALINE RIVER AT DELL ROAD ABOVE SALINE, MICH. (LAT 42 10 16 LONG 083 49 32)												
AUG., 1971												
18...	.4	.3	.005	470	390	130	717	7.9	23.0	15	8	
04176370 - SALINE R. TRIB. AT SALINE WW RD NR SALINE, MI. (LAT 42 10 34 LONG 083 49 17)												
AUG., 1971												
10...	--	E.2	--	--	296	86	560	7.4	27.0	40	9	
18...	.3	.7	.000	405	340	88	634	7.8	23.5	5	6	
04176380 - SALINE R. TRIB. NO. 2 AT SALINE, MI. (LAT 42 10 37 LONG 083 47 17)												
AUG., 1971												
10...	--	E.9	--	--	296	110	580	7.8	25.0	70	5	
04176390 - SALINE RIVER AT SALINE, MI. (LAT 42 09 35 LONG 083 47 01)												
AUG., 1971												
09...	--	E.4	--	--	326	95	750	7.3	23.0	10	5	
04176399 - KOCH-WARNER D AT SALINE-MILAN RD AT SALINE, M. (LAT 42 09 22 LONG 083 46 29)												
AUG., 1971												
09...	--	E.8	--	--	328	110	600	7.7	16.0	40	3	
18...	.2	1.3	.000	436	360	110	667	7.8	18.0	5	1	

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(NOTE—VALUES PREFACED BY THE LETTER "E" ARE ESTIMATED)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
04176400 - SALINE RIVER NEAR SALINE, MI. (LAT 42 07 50 LONG 083 46 35)												
AUG., 1971 10...	1400	8.4	--	--	--	--	--	--	310	0	E155	92
04176405 - SALINE R. TRIB. NO. 3 NR. SALINE, MI. (LAT 42 08 01 LONG 083 44 58)												
AUG., 1971 09...	1245	.38	--	--	--	--	--	--	242	0	E60	22
04176418 - SALINE RIVER AT PLATT ROAD ABOVE MILAN, MICH. (LAT 42 05 05 LONG 083 41 45)												
AUG., 1971 17...	1420	--	12	--	92	22	98	7.0	285	0	130	110
04176420 - SALINE RIVER AT MILAN, MI. (LAT 42 04 38 LONG 083 40 23)												
AUG., 1971 10...	1300	9.0	--	--	--	--	--	--	290	0	E135	69
04176555 - PLUM C. AT RAISINVILLE RD. NEAR MONROE, MI (LAT 41 54 55 LONG 083 28 33.01)												
AUG., 1971 05...	--	<.01	--	--	--	--	--	--	222	0	E1400	85
04176560 - PITTS C. AT RAISINVILLE RD. NR MONROE, MI. (LAT 41 54 39 LONG 083 28 31.01)												
AUG., 1971 05...	--	<.01	--	--	--	--	--	--	281	0	E440	88
04176566 - PLUM C AT KENTUCKY AVE AT MONROE, MI. (LAT 41 54 08 LONG 083 23 35)												
AUG., 1971 31...	--	1.2	--	--	--	--	--	--	244	0	E975	32
04176590 - OTTER CREEK AT GOUTZ RD. NEAR MONROE, MI. (LAT 41 52 26 LONG 083 29 23.01)												
AUG., 1971 05...	--	.01	--	--	--	--	--	--	232	0	E250	72
04176630 - BAY C AT DETROIT-TOLEDO RR NR MONROE, MI. (LAT 41 47 26 LONG 083 28 32)												
AUG., 1971 31...	--	.03	--	--	--	--	--	--	227	0	E130	84
04176640 - LITTLE LAKE C AT SUDER RD NR ERIE, MI. (LAT 41 46 23 LONG 082 29 28)												
AUG., 1971 31...	--	.01	--	--	--	--	--	--	244	0	E120	52
04176680 - HALFWAY C AT SMITH RD NR LAMBERTVILLE, MI. (LAT 41 44 07 LONG 083 36 18)												
AUG., 1971 31...		1.3	--	--	--	--	--	--	232	0	E300	34
04176695 - INDIAN C AT LAVOY RD NR TEMPERANCE, MI. (LAT 41 34 14 LONG 083 32 46)												
AUG., 1971 31...		.08	--	--	--	--	--	--	59	0	E74	50

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

(NOTE—VALUES PREFACED BY THE LETTER "E" ARE ESTIMATES)

DATE	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS_ SOLVED NITRATE (NO3) (MG/L)	TOTAL ORTHO PHOS- PHORUS (P) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)
04176400 - SALINE RIVER NEAR SALINE, MI. (LAT 42 07 50 LONG 083 46 35)											
AUG., 1971 10...	--	E2.6	--	--	332	78	1000	6.9	19.0	70	1
04176405 - SALINE R. TRIB. NO. 3 NR. SALINE, MI. (LAT 42 08 01 LONG 083 44 58)											
AUG., 1971 09...	--	E.9	--	--	264	65	500	7.7	18.0	10	2
04176418 - SALINE RIVER AT PLATT ROAD ABOVE MILAN, MICH. (LAT 42 05 05 LONG 083 41 45)											
AUG., 1971 17...	.7	8.2	.000	642	320	86	1030	7.5	23.0	20	10
04176420 - SALINE RIVER AT MILAN, MI. (LAT 42 04 38 LONG 083 40 23)											
AUG., 1971 10...	--	E8.5	--	--	324	86	850	8.0	25.0	10	10
04176555 - PLUM C. AT RAISINVILLE RD. NEAR MONROE, MI (LAT 41 54 55 LONG 083 28 33.01)											
AUG., 1971 05...	--	E.0	--	--	1604	1400	2400	7.9	24.5	30	1
04176560 - PITTS C. AT RAISINVILLE RD. NR MONROE, MI. (LAT 41 54 39 LONG 083 28 31.01)											
AUG., 1971 05...	--	E.2	--	--	728	500	1350	7.5	--	20	0
04176566 - PLUM C AT KENTUCKY AVE AT MONROE, MI. (LAT 41 54 08 LONG 083 23 35)											
AUG., 1971 31...	--	E3.0	--	--	1304	1104	2000	8.2	20.0	0	1
04176590 - OTTER CREEK AT GOUTZ RD. NEAR MONROE, MI. (LAT 41 52 26 LONG 083 29 23.01)											
AUG., 1971 05...	--	E5.5	--	--	380	190	850	7.4	--	40	10
04176630 - BAY C AT DETROIT-TOLEDO RR NR ERIE, MI. (LAT 41 47 26 LONG 083 28 32)											
AUG., 1971 31...	--	E5.5	--	--	294	108	750	8.1	22.5	70	6
04176640 - LITTLE LAKE C AT SUDER RD NR ERIE, MI. (LAT 41 46 23 LONG 082 29 28)											
AUG., 1971 31...	--	--	--	--	384	184	600	8.2	20.5	90	3
04176680 - HALFWAY C AT SMITH RD NR LAMBERTVILLE, MI. (LAT 41 44 07 LONG 083 36 18)											
AUG., 1971 31...	--	E4.2	--	--	536	346	950	8.2	20.5	15	17
04176695 - INDIAN C AT LAVOY RD NR TEMPERANCE, MI. (LAT 41 34 14 LONG 083 32 46)											
AUG., 1971 31...	--	E.2	--	--	116	68	380	7.5	22.0	50	20

ANALYSES FOR SELECTED NUTRIENTS AND SANITARY PARAMETERS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DISSOLVED ORGANIC NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS. HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHOPHOSPHORUS (P) (MG/L)	TOTAL ORTHOPHOSPHORUS (P) (MG/L)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND (MG/L)	COLIFORM (MPN)	FECAL COLIFORM (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
STREAMS TRIBUTARY TO LAKE HURON																		
04102186 - SOUTH BRANCH PAW PAW RIVER AT PAW PAW, MICH. (LAT 43 13 02 LONG 085 53 55)																		
71-07-15	.58	.84	.14	.020	.9	.9	.070	.26	.060	.14	.010	.120	--	--	--	--	--	--
04102192 - SOUTH BRANCH PAW PAW RIVER NEAR PAW PAW, MICH. (LAT 42 14 10 LONG 085 53 12)																		
71-07-15	.42	.42	.04	.020	.2	.2	.020	.030	.020	.020	.000	.010	--	--	--	--	--	--
STREAMS TRIBUTARY TO DETROIT RIVER																		
04166650 - JOHNSON DRAIN NEAR BROOKVILLE, MICH. (LAT 42 22 54 LONG 083 33 18)																		
71-08-17	--	--	.46	.017	.7	.4	--	.034	--	--	--	.000	6.5	75	1.3	39,000	11,000	.00
04167250 - LOWER RIVER ROUGE AT CHERRY HILL, MICH. (LAT 42 18 38 LONG 083 32 49)																		
71-08-17	--	--	.78	.022	.3	.3	--	.060	--	--	--	.033	6.0	70	4.3	11,000	210	.00
04167350 - FOWLER CREEK NEAR WILLOW RUN, MICH. (LAT 42 16 32 LONG 083 33 16)																		
71-08-17	--	--	.56	.022	.2	.2	--	.10	--	--	--	.073	9.4	109	9.3	11,000	40	.10
STREAMS TRIBUTARY TO LAKE ERIE																		
04172105 - HORSESHOE LAKE OUTLET NEAR WHITMORE LAKE, MICH. (LAT 42 24 56 LONG 083 45 40)																		
71-08-17	--	--	.61	.020	.2	.1	--	.060	--	--	--	.037	13.6	162	.9	11,000	<30	.00
04172200 - ARMS CREEK NEAR HAMBURG, MICH. (LAT 42 25 16 LONG 083 52 30)																		
71-08-18	--	--	.56	.036	.3	--	--	.067	--	--	--	.044	6.9	84	5.3	24,000	400	.00
04172400 - SOUTH LAKE OUTLET NEAR UNADILLA, MICH. (LAT 42 24 22 LONG 084 04 42)																		
71-08-18	--	--	.76	.014	.3	.04	--	.001	--	--	--	.000	2.4	27	1.0	11,000	400	.00
04173000 - HURON RIVER NEAR DEXTER, MICH. (LAT 42 23 10 LONG 083 54 40)																		
71-08-18	--	--	.51	.012	.2	.04	--	.010	--	--	--	.008	7.6	100	1.7	1,100	<300	.00
04173150 - MILL CREEK NEAR SYLVAN, MICH. (LAT 42 15 04 LONG 084 02 01)																		
71-08-18	--	--	.42	.015	.2	.02	--	.023	--	--	--	.005	9.6	97	2.1	46,000	400	.00
04173254 - MILL CREEK NEAR LIMA CENTER, MICH. (LAT 42 16 53 LONG 083 52 28)																		
71-08-18	--	--	.56	.009	.00	.00	--	.068	--	--	--	.068	10.4	127	2.1	15,000	4,300	.00
04173310 - NORTH FORK CREEK NEAR CHELSEA, MICH. (LAT 42 19 54 LONG 084 00 57)																		
71-08-18	--	--	.42	.008	.00	.00	--	.068	--	--	--	.033	9.8	113	4.0	46,000	4,300	.00
04173320 - LETTS CREEK AT CHELSEA, MICH. (LAT 42 19 27 LONG 084 01 16)																		
71-08-18	--	--	.46	.006	.00	.00	--	.034	--	--	--	.010	6.2	68	3.3	11,000	400	.00
04173350 - NORTH FORK MILL CREEK NEAR LIMA CENTER, MICH (LAT 42 17 46 LONG 083 57 33)																		
71-08-19	--	--	.73	.190	1.3	1.3	--	.55	--	--	--	.360	6.9	71	6.4	46,000	--	.00
04174050 - HURON RIVER AT DELHI MILLS, MICH (LAT 42 20 01 LONG 083 48 04)																		
71-08-19	--	--	.51	.023	.3	.3	--	.10	--	--	--	.065	5.9	69	6.8	46,000	400	.00
04174500 - HURON RIVER AT ANN ARBOR, MICH. (LAT 42 17 10 LONG 083 44 00)																		
71-08-17	--	--	.49	.010	.2	.2	--	.070	--	--	--	.030	8.4	93	3.1	11,000	430	.00

ANALYSES FOR SELECTED NUTRIENTS AND SANITARY PARAMETERS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-SOLVED ORGANIC NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRATE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS. HYDRO LYZABLE PHOS PHORUS (P) (MG/L)	TOTAL HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO-PHOS-PHORUS (P) (MG/L)	TOTAL ORTHO-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	COLI-FORM (MPN)	FECAL COLI-FORM (MPN)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
STREAMS TRIBUTARY TO LAKE MICHIGAN																		
04174510 - ALLEN CREEK AT ANN ARBOR, MICH. (LAT 42 17 51 LONG 083 43 54)																		
71-08-17	--	--	.39	.015	.6	.5	--	.10	--	--	--	.039	11.7	130	.4	11,000	2,400	.00
04174518 - PITTSFIELD DRAIN AT ANN ARBOR, MICH. (LAT 42 15 54 LONG 083 41 10)																		
71-08-17	--	--	.80	.050	.5	.5	--	.19	--	--	--	.080	6.4	66	1.7	39,000	11,000	.00
04174695 - FLEMING CREEK AT DIXBORO, MICH. (LAT 42 18 29 LONG 083 39 23)																		
71-08-17	--	--	.44	.016	.2	.2	--	.013	--	--	--	.000	11.0	126	.7	11,000	15,000	.00
04174800 - HURON RIVER AT YPSILANTI, MICH. (LAT 42 14 27 LONG 083 36 43)																		
71-08-17	--	--	2.0	.240	1.3	--	--	.65	--	--	--	.570	5.9	70	10	4,600	190	.00
04174900 - FORD LAKE AT FORD DAM NEAR RAWSONVILLE, MICH (LAT 42 12 22 LONG 083 33 23)																		
71-08-18	--	--	1.2	.110	.4	--	--	.39	--	--	--	.320	6.2	73	--	400	300	.00
04175520 - STONY CREEK NEAR OAKVILLE, MICH. (LAT 42 06 48 LONG 083 36 30)																		
71-08-17	--	--	.42	.017	.7	.7	--	.034	--	--	--	.023	11.4	127	.8	>11,000	930	.00
04175525 - SUGAR CREEK NEAR OAKVILLE, MICH. (LAT 42 05 54 LONG 083 36 31)																		
71-08-17	--	--	.51	.010	.2	.02	--	.047	--	--	--	.046	7.1	77	3.2	4,600	930	.00
04175538 - PAINT CREEK AT OAKVILLE, MICH. (LAT 42 05 44 LONG 083 36 30)																		
71-08-17	--	--	.39	.009	.2	.07	--	.028	--	--	--	.020	9.7	108	.9	11,000	230	.00
04175997 - RIVER RAISIN NEAR SHARONVILLE, MICH. (LAT 42 10 04 LONG 084 07 21)																		
71-08-19	--	--	.46	.014	.4	.4	--	.034	--	--	--	.023	9.6	112	4.6	15,000	900	.00
04175610 - RIVER RAISIN NEAR MANCHESTER, MICH. (LAT 42 09 00 LONG 084 01 26)																		
71-08-19	--	--	.71	.030	.2	--	--	.16	--	--	--	.130	6.4	75	8.6	4,300	300	.00
04175630--RIVER RAISIN NEAR CLINTON, MICH. (LAT 42 05 36 LONG 083 58 35)																		
71-08-19	--	--	.49	.014	.2	.2	--	.090	--	--	--	.068	8.3	95	7.1	46,000	900	.00
04175650 - IRON CREEK NEAR CLINTON, MICH. (LAT 42 05 37 LONG 083 59 17)																		
71-08-19	--	--	.48	.011	.4	.02	--	.024	--	--	--	.005	8.9	92	5.7	21,000	4,300	.00
04176350 - SALINE RIVER AT BENTON, MICH. (LAT 42 08 18 LONG 083 52 08)																		
71-08-18	--	--	.49	.009	.05	.00	--	.010	--	--	--	.000	9.8	116	4.2	46,000	900	.00
04176365 - SALINE RIVER ABOVE SALINE, MICH. (LAT 42 10 16 LONG 083 49 32)																		
71-08-18	--	--	.54	.012	.00	.00	--	.021	--	--	--	.005	9.5	113	2.5	46,000	1,500	.00
04176370 - SALINE RIVER TRIBUTARY NEAR SALINE, MICH. (LAT 42 10 34 LONG 083 49 17)																		
71-08-18	--	--	.48	.019	.00	.00	--	.013	--	--	--	.000	15.2	183	6.0	2,100	400	.00
04176399 - KOCH-WARNER DRAIN AT SALINE, MICH. (LAT 42 09 22 LONG 083 46 29)																		
71-08-18	--	--	.41	.014	.2	.2	--	.011	--	--	--	.000	12.4	135	3.4	15,000	1,800	.00
04176418 - SALINE RIVER ABOVE MILAN, MICH. (LAT 42 05 05 LONG 083 41 45)																		
71-08-17	--	--	.94	.120	1.4	--	--	1.2	--	--	--	.00	11.6	138	6.9	11,000	40	.00

ANALYSES FOR SELECTED MINOR ELEMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

A nationwide reconnaissance of selected minor elements in surface waters was conducted by the U. S. Geological Survey during October, 1970. The results of the nationwide reconnaissance were published in Geological Survey Circular 643, "Reconnaissance of Selected Minor Elements in Surface Waters of the United States, October 1970," which can be obtained free on application to the U. S. Geological Survey, Washington D.C. 20242. Of the following data, those analyses for samples collected in October, 1970 were collected as part of the nationwide reconnaissance.

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
STREAMS TRIBUTARY TO LAKE SUPERIOR																		
04001000 - WASHINGTON CREEK AT WINDIGO, MICH. (LAT 47 55 15 LONG 089 08 50)																		
70-10-15	10	1	--	--	0	0	0	--	10	--	2	--	.0	<.5	0	--	--	120
71-05-08	0	0	--	0	--	--	5	--	2	--	2	--	--	--	0	--	--	18
04044200 - CARP CREEK AT ISHPEMING, MICH. (LAT 46 29 11 LONG 087 41 21)																		
71-05-25	0	2	--	--	--	0	0	--	250	--	29	--	--	1.5	44	--	--	210
71-08-17	10	0	--	--	--	0	0	--	5	--	6	--	160	240	5	--	--	100
71-09-27	--	--	--	--	--	--	--	--	--	--	--	--	<.5	<.5	--	--	--	--
04044400 - CARP RIVER NEAR NEGAUNEE, MICH. (LAT 46 31 29 LONG 087 34 25)																		
71-05-26	0	0	--	--	--	0	0	--	190	--	33	--	--	1.5	23	--	--	190
71-08-17	10	0	--	--	--	0	0	0	4	-	6	--	2.2	2.7	3	--	--	60
04044563 - BIG CREEK NEAR HARVEY, MICH. (LAT 46 26 04 LONG 087 19 04)																		
71-05-25	0	0	--	--	--	0	0	--	26	--	3	--	--	1.4	8	--	--	60
71-08-17	1	0	--	--	--	0	0	--	2	--	1	--	1.2	7.9	3	--	--	110
71-09-28	--	--	--	--	--	--	--	--	--	--	--	--	<.5	<.5	--	--	--	--
04044583 - CHERRY CREEK NEAR HARVEY, MICH. (LAT 46 28 07 LONG 087 21 53)																		
71-05-18	0	0	--	--	--	0	0	--	100	--	29	--	--	1.4	8	--	--	250
71-08-17	1	0	--	--	--	0	0	--	3	--	3	--	1.2	4.9	3	--	--	100
04044594 - SILVER CREEK NEAR HARVEY, MICH. (LAT 46 29 94 LONG 087 22 18)																		
71-05-18	0	0	--	--	--	0	0	--	5	--	9	--	--	1.2	3	--	--	80
71-08-17	8	0	--	--	--	0	0	--	3	--	2	--	<.5	2.2	1	--	--	80
04045580 - ST. MARYS R. AT SAULT STE. MARIE, MICH. (LAT 46 29 29 LONG 084 25 17)																		
71-10-21	20	0	--	--	--	0	--	--	--	--	6	--	.0	<.5	--	--	--	100
71-06-28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7	--
04045590 - ST. MARYS RIVER NEAR SAULT STE MARIE, MICH. (LAT 46 29 11 LONG 084 18 07)																		
70-10-21	10	1	--	--	--	0	1	--	--	--	5	--	.0	<.5	--	--	--	110
STREAMS TRIBUTARY TO LAKE MICHIGAN																		
04057690 - MIDDLE BRANCH ESCANABA R. NEAR MARTINS LANDING, MICH. (LAT 46 31 57 LONG 087																		
71-05-26	0	0	--	--	--	0	1	--	68	--	13	--	--	.8	10	--	--	170
71-08-12	7	1	--	--	--	0	0	--	4	--	40	--	<.5	2.7	26	--	--	60
04057800 - MIDDLE BRANCH ESCANABA R. AT HUMBOLT, MICH. (LAT 46 25 08 LONG 087 53 21)																		
71-05-26	0	0	--	--	--	0	0	--	32	--	9	--	--	1.7	8	--	--	100
71-08-12	6	0	--	--	--	0	6	--	2	--	12	--	<.5	2.7	3	--	--	70
04057900 - BLACK RIVER NEAR REPUBLIC, MICH. (LAT 46 25 08 LONG 087 53 21)																		
71-05-19	0	0	--	--	--	0	0	--	6	--	4	--	--	1.4	3	--	--	100
71-08-13	13	0	--	--	--	0	0	--	3	--	14	--	.5	2.4	3	--	--	140
04058015 - WEST BRANCH CREEK NEAR REPUBLIC, MICH. (LAT 46 21 28 LONG 087 49 44)																		
71-05-25	0	2	--	--	--	0	0	--	65	--	120	--	--	1.6	22	--	--	70
71-08-12	9	0	--	--	--	0	0	--	5	--	3	--	2.5	2.0	4	--	--	80
04058026 - WEST BRANCH CREEK NEAR NATIONAL MINE, MICH. (LAT 46 22 56 LONG 087 45 51)																		
71-05-25	0	0	--	--	--	0	0	--	11	--	3	--	--	1.6	4	--	--	90
71-08-12	4	0	--	--	--	0	0	--	2	--	11	--	10	170	3	--	--	80
71-09-27	--	--	--	--	--	--	--	--	--	--	--	--	<.5	<.5	--	--	--	--

ANALYSES FOR SELECTED MINOR ELEMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971.--Continued

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
STREAMS TRIBUTARY TO LAKE MICHIGAN.--Continued																		
04058100 - MIDDLE BRANCH ESCANABA RIVER NEAR PRINCETON, MICH. (LAT 46 19 02 LONG 087 30 07)																		
71-05-24	0	2	—	—	—	0	0	—	29	--	15	--	—	1.7	10	--	--	100
71-08-17	8	0	—	—	—	0	0	—	2	—	3	—	<.5	5.0	4	—	—	60
04058120 - GREEN CREEK NEAR PALMER, MICH. (LAT 46 22 21 LONG 087 36 21.01)																		
71-05-24	10	2	—	—	--	0	0	—	82	--	21	--	--	1.8	20	--	—	170
71-08-13	13	0	—	—	—	0	0	—	1	—	4	—	<.5	.9	1	—	--	60
04058155 - GREEN CREEK AT HWY. 581 NEAR NATIONAL MINE, MICH. (LAT 46 25 49 LONG 087 45 08)																		
71-05-26	0	18	—	—	—	0	0	—	65	--	13	—	--	1.5	5	--	—	130
71-08-13	9	0	—	—	—	0	0	—	3	—	16	—	<.5	1.8	2	--	--	60
04058200 - SCHWEITZER CREEK NEAR PALMER, MICH. (LAT 46 24 40 LONG 087 37 27)																		
71-05-24	0	1	—	—	—	0	0	—	57	--	20	--	--	2.0	12	—	—	120
71-08-13	6	0	—	—	—	0	0	—	8	--	4	—	<.5	1.6	2	--	—	60
04058350 - GOOSE LAKE INLET NEAR NEGAUNEE, MICH. (LAT 46 28 30 LONG 087 32 45)																		
71-05-25	0	0	—	—	--	0	0	--	39	—	15	--	--	1.9	8	—	--	110
71-08-13	7	0	--	—	--	0	0	--	1	--	0	—	<.5	.9	0	—	—	60
04058400 - GOOSE LAKE OUTLET NEAR SANDS STATION, MICH. (LAT 46 23 36 LONG 087 29 40)																		
71-05-24	0	0	--	—	—	0	0	—	78	--	14	--	—	1.9	25	--	--	140
71-08-13	3	0	—	--	—	0	0	--	1	—	3	—	<.5	.6	2	--	--	80
04058500 - EAST BRANCH ESCANABA RIVER AT GWINN, MICH. (LAT 46 17 10 LONG 087 26 00)																		
71-05-24	10	0	--	--	—	0	0	—	32	--	12	—	—	1.3	10	—	—	50
71-08-17	4	0	—	—	—	0	0	—	2	—	2	—	1.1	1.1	3	—	--	170
04062200 - PESHEKEE RIVER NEAR CHAMPION, MICH. (LAT 46 33 25 LONG 088 00 09)																		
71-05-19	0	0	—	—	—	0	0	--	24	--	9	—	--	.7	4	—	--	140
71-08-16	9	0	--	—	--	0	0	—	2	—	9	--	1.4	2.2	1	—	--	70
04062230 - MICHIGAMME R. NEAR MICHIGAMME, MICH. (LAT 46 28 00 LONG 088 04 28.01)																		
71-05-19	0	1	—	—	—	0	0	--	49	—	46	--	—	.7	8	--	--	150
71-08-16	10	0	—	—	—	0	0	—	4	—	6	—	8.0	84	3	—	—	50
71-09-28	—	—	—	—	—	--	--	—	--	—	--	—	<.5	<.5	—	--	--	—
04062350 - GAMBLES CREEK NEAR REPUBLIC, MICH. (LAT 46 21 00 LONG 087 56 08)																		
71-05-25	0	0	—	—	--	0	0	—	8	--	1	—	—	2.6	4	--	--	60
71-08-16	9	0	—	—	—	0	0	—	2	—	8	—	.8	2.8	2	--	--	30
04062360 - MICHIGAMME RIVER NEAR WITBECK, MICH. (LAT 46 18 18 LONG 087 58 37)																		
70-10-20	10	0	—	—	—	0	0	—	—	--	5	—	.0	<.5	--	--	—	120
04062400 - MICHIGAMME RIVER NEAR WITCH LAKE, MICH. (LAT 46 14 48 LONG 088 00 45.01)																		
71-05-19	0	0	—	--	--	0	0	—	1	--	0	—	--	.9	1	—	--	80
71-08-16	10	0	--	--	—	0	0	--	1	—	5	—	.7	1.1	1	—	—	0
04097140 - INDIAN LAKE NEAR VICKSBURG, MICH. (LAT 42 09 27 LONG 085 27 52)																		
71-07-30	—	—	--	--	—	—	—	—	--	--	—	—	5.5	—	—	--	—	—
71-09-10	--	—	—	—	—	—	—	—	--	--	--	—	<.5	<.5	--	—	—	—
04097187 - LONG LAKE NEAR KALAMAZOO, MICH. (LAT 42 11 09 LONG 085 32 17)																		
71-07-30	—	—	—	—	—	—	--	—	—	—	—	—	<.5	—	—	—	--	—

ANALYSES FOR SELECTED MINOR ELEMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971.--Continued

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
STREAMS TRIBUTARY TO LAKE MICHIGAN.--CONTINUED																		
04097190 - WEST LAKE NEAR KALAMAZOO, MICH. (LAT 42 10 57 LONG 085 33 51)																		
71-07-30	--	--	--	--	--	--	--	--	--	--	--	--	<.5	--	--	--	--	--
04097212 - PORTAGE CREEK ABOVE BARTON L NEAR VICKSBURG, MICH. (LAT 42 06 21 LONG 085 33 14)																		
71-09-10	--	--	--	--	--	--	--	--	--	--	--	--	<.5	.5	--	--	--	--
04097217 - BARTON LAKE NEAR VICKSBURG, MICH.(LAT 42 05 55 LONG 085 33 15)																		
71-07-30	--	--	--	--	--	--	--	--	--	--	--	--	196	--	--	--	--	--
71-09-10	--	--	--	--	--	--	--	--	--	--	--	--	<.5	<.5	--	--	--	--
04102186 - SOUTH BRANCH PAW PAW R. AT PAW PAW, MICH. (LAT 42 13 03 LONG 085 53 55)																		
71-07-15	--	0	0	--	--	--	0	1	6	6	2	19	1.0	1.1	4	5	--	--
04105675 - KALAMAZOO RIVER AT AUGUSTA, MICH. (LAT 42 20 07 LONG 085 20 17.01)																		
71-07-29	--	--	--	--	--	--	--	--	--	--	--	--	1.8	--	--	--	--	--
04105767 - GULL LAKE NEAR RICHLAND, MICH.(LAT 42 09 27 LONG 085 27 52)																		
71-07-29	--	--	--	--	--	--	--	--	--	--	--	--	1.5	--	--	--	--	--
04106400 - WEST FORK PORTAGE CREEK AT KALAMAZOO, MICH. (LAT 42 14 40 LONG 085 36 50)																		
71-07-29	--	--	--	--	--	--	--	--	--	--	--	--	<.5	--	--	--	--	--
04106500 - PORTAGE CREEK AT KALAMAZOO, MICH. (LAT 42 16 30 LONG 085 34 35.01)																		
71-07-29	--	--	--	--	--	--	--	--	--	--	--	--	2.1	--	--	--	--	--
04106506 - AXTELL CREEK RECHARGE POND AT KALAMAZOO, MICH. (LAT 42 16 45 LONG 085 35 03)																		
71-08-04	--	0	--	0	--	--	0	--	--	--	4	--	.8	--	3	--	--	30
04106600 - KALAMAZOO RIVER AT PARCHMENT, MICH.(LAT 42 20 02 LONG 085 34 58)																		
70-10-22	20	1	--	--	--	0	0	--	--	--	5	--	.1	<.5	--	--	--	200
71-07-29	--	--	--	--	--	--	--	--	--	--	--	--	.5	--	--	--	--	--
04106770 - KALAMAZOO RIVER NEAR COOPER CENTER, MICH. (LAT 42 22 38 LONG 085 34 45)																		
71-07-29	--	--	--	--	--	--	--	--	--	--	--	--	<.5	--	--	--	--	--
04108890 - LAKE MICHIGAN AT MUNICIPAL INTAKE NEAR AGNEW, MICH. (LAT 42 58 18 LONG 086 14 15)																		
70-10-22	10	0	--	--	--	0	0	--	--	--	7	--	.2	.7	--	--	--	70
04112560 - RED CEDAR RIVER AT G.T. RR BRIDGE AT LANSING, MICH. (LAT 42 43 09 LONG 084 31 06)																		
70-10-23	10	1	--	--	--	0	0	--	--	--	4	--	.1	<.5	--	--	--	130
04119200 - GRAND RIVER AT M-11 BRIDGE AT GRANDVILLE, MICH. (LAT 42 54 55 LONG 085 46 02)																		
70-10-22	0	0	--	--	--	0	0	--	--	--	2	--	.1	.7	--	--	--	100
STREAMS TRIBUTARY TO LAKE HURON																		
04148495 - FLINT RIVER AT THIRD AVE. BRIDGE AT FLINT, MICH. (LAT 46 00 36 LONG 083 43 12)																		
70-10-15	10	1	--	--	--	0	0	--	--	--	3	--	.4	<.5	--	--	--	60
04156200 - TITTABAWASSEE RIVER AT MAPLETON, MICH.(LAT 43 33 52 LONG 084 11 14)																		
70-10-23	10	0	--	--	--	0	0	--	--	--	2	--	.1	.8	--	--	--	70
04157050 - SAGINAW RIVER AT MOUTH NEAR APLIN BEACH, MICH. (LAT 43 38 47 LONG 083 50 57)																		
70-10-15	0	0	--	--	--	0	0	--	--	--	2	--	.2	<.5	--	--	--	110

ANALYSES FOR SELECTED MINOR ELEMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971.—Continued

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PC) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
STREAMS TRIBUTARY TO LAKE ST. CLAIR																		
04159130 - ST. CLAIR RIVER AT PORT HURON, MICH. (LAT 42 59 19 LONG 082 25 29)																		
70-10-19	0	0	—	—	—	0	0	—	—	—	5	—	.0	<.5	—	—	—	160
71-01-04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	—
71-06-28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
STREAMS TRIBUTARY TO DETROIT RIVER																		
04165700 - DETROIT RIVER AT DETROIT, MICH.(LAT 42 20 50 LONG 082 57 31)																		
70-10-16	0	0	—	—	—	0	0	—	—	—	4	—	.0	<.5	—	—	—	10
71-01-04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	—
71-06-28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—
04166650 - JOHNSON DRAIN NEAR BROOKEVILLE, MICH. (LAT 42 22 54 LONG 083 33 18)																		
71-08-17	0	0	—	—	—	0	—	—	—	—	2	—	.5	—	—	—	—	—
04167250 - LOWER RIVER ROUGE AT CHERRY HILL, MICH. (LAT 42 18 38 LONG 083 32 49)																		
71-08-17	10	0	—	—	—	—	0	—	—	—	2	—	3.7	—	—	—	—	—
04167350 - FOWLER CREEK NEAR WILLOW RUN, MICH. (LAT 42 16 32 LONG 083 33 16)																		
71-08-17	7	0	—	—	—	—	0	—	—	—	1	—	1.8	—	—	—	—	—
04168555 - RIVER ROUGE CUT-OFF CANAL AT ZUG ISLAND, MICH. (LAT 42 16 42 LONG 083 06 57)																		
70-10-14	0	0	—	—	—	0	0	—	—	—	4	—	.0	<.5	—	—	—	90
04168640 - DETROIT RIVER AT TRENTON, MICH.(LAT 42 07 37 LONG 083 10 55)																		
71-01-04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	—
71-07-06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	—
04168649 - DETROIT RIVER,TRENTON CHANNEL, AT SWAN ISLAND, MICH. (LAT 42 05 43 LONG 083 07 50)																		
70-10-14	10	0	—	—	—	0	0	—	—	—	4	—	.2	.6	—	—	—	30
04168670 - DETROIT RIVER, LIVINGSTONE CHANNEL, NEAR AMHERSTBURG, ONT. (LAT 42 04 03 LONG																		
70-10-14	10	1	—	—	—	0	0	—	—	—	2	—	.2	<.5	—	—	—	120
STREAMS TRIBUTARY TO LAKE ERIE																		
04172105 - HORSESHOE LAKE OUTLET NEAR WHITMORELAKE, MICH. (LAT 42 24 56 LONG 083 45 40)																		
71-08-17	8	0	—	—	—	—	0	—	—	—	1	—	5.3	—	—	—	—	—
04172200 - ARMS CREEK NEAR HAMBURG, MICH. (LAT 42 25 16 LONG 083 52 30)																		
71-08-18	6	0	—	—	—	—	0	—	—	—	1	—	1.5	—	—	—	—	—
04172400 - SOUTH LAKE OUTLET NEAR UNADILLA, MICH. (LAT 42 24 22 LONG 084 04 42)																		
71-08-18	0	0	—	—	—	—	0	—	—	—	1	—	2.8	—	—	—	—	—
04173000 - HURON RIVER NEAR DEXTER, MICH. (LAT 42 23 10 LONG 083 54 40)																		
71-08-18	5	0	—	—	—	—	0	—	—	—	1	—	.6	—	—	—	—	—
04173150 - MILL CREEK NEAR SYLVAN, MICH. (LAT 42 15 04 LONG 084 02 01)																		
71-08-18	6	0	—	—	—	—	0	—	—	—	1	—	1.0	—	—	—	—	—
04173254 - MILL CREEK NEAR LIMA CENTER, MICH.(LAT 42 16 53 LONG 083 52 28)																		
71-08-18	3	0	—	—	—	—	0	—	—	—	0	—	<.5	—	—	—	—	—
04173310 - NORTH FORK MILL CREEK NEAR CHELSEA, MICH.(LAT 42 19 54 LONG 084 00 57)																		
71-08-18	5	1	—	—	—	—	0	—	—	—	1	—	.8	—	—	—	—	—

ANALYSES FOR SELECTED MINOR ELEMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971.--Continued

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
STREAMS TRIBUTARY TO																		
04173320 - LETTS CREEK AT CHELSEA, MICH. (LAT 42 19 27 LONG 084 01 16)																		
71-08-18	6	0	—	—	—	—	0	—	—	—	1	—	.8	—	—	—	—	—
04173350 - NORTH FORK MILL CREEK NEAR LIMA CENTER, MICH. (LAT 42 17 46 LONG 083 57 33)																		
71-08-19	6	0	—	—	—	—	0	—	—	—	0	—	<.5	—	—	—	—	—
04174050 - HURON RIVER AT DELHI MILLS, MICH. (LAT 42 20 21 LONG 083 48 04)																		
71-08-19	0	0	—	—	—	—	0	—	—	—	0	—	<.5	—	1	—	7	90
04174500 - HURON RIVER AT ANN ARBOR, MICH, (LAT 42 17 10 LONG 083 44 00)																		
71-08-17	10	0	—	—	—	—	0	—	—	—	3	—	10	—	—	—	—	—
04174510 - ALLEN CREEK AT ANN ARBOR, MICH. (LAT 42 17 51 LONG 083 43 54)																		
71-08-17	6	0	—	—	—	—	0	—	—	—	1	—	2.5	—	—	—	—	—
04174518 - PITTSFIELD DRAIN AT ANN ARBOR, MICH. (LAT 42 15 54 LONG 083 41 10)																		
71-08-17	11	0	—	—	—	—	0	—	—	—	2	—	1.3	—	—	—	—	—
04174695 - FLEMING CREEK AT DIXBORO, MICH. (LAT 42 18 29 LONG 083 39 23)																		
71-08-17	10	0	—	—	—	—	0	—	—	—	1	—	.9	—	—	—	—	—
04174800 - HURON RIVER AT YPSILANTI, MICH. (LAT 42 14 27 LONG 083 36 43)																		
71-08-17	6	0	—	—	—	—	0	—	—	—	0	—	2.4	—	—	—	—	—
04174890 - FORD LAKE (HURON RIVER) AT YPSILANTI, MICH. (LAT 42 13 24 LONG 083 36 12)																		
70-10-14	0	0	—	—	—	0	0	—	—	—	3	—	.1	.5	—	—	—	100
04174900 - FORD LAKE AT FORD DAM NEAR RAWSONVILLE, MICH. (LAT 42 12 22 LONG 083 33 23)																		
71-08-18	6	0	—	—	—	—	0	—	—	—	0	—	<.5	—	12	—	8	210
04175520 - STONY CREEK NEAR OAKVILLE, MICH. (LAT 42 06 48 LONG 083 36 30)																		
71-08-17	0	0	—	—	—	—	0	—	—	—	0	—	2.9	—	—	—	—	—
04175515 - LAKE ERIE AT INTAKE NEAR POINTE AUX PEAUX, MICH. (LAT 41 56 20 LONG 083 14 20)																		
71-08-17	6	0	—	—	—	—	0	—	—	—	3	—	.1	.5	—	—	—	110
04175525 - SUGAR CREEK NEAR OAKVILLE, MICH. (LAT 42 05 54 LONG 083 36 20)																		
71-08-17	6	0	—	—	—	—	0	—	—	—	2	—	1.0	—	—	—	—	—
04175538 - PAINT CREEK AT OAKVILLE, MICH. (LAT 42 05 44 LONG 083 36 30)																		
71-08-17	0	0	—	—	—	—	0	—	—	—	1	—	.7	—	—	—	—	—
04175597 - RIVER RAISIN NEAR SHARONVILLE, MICH. (LAT 42 10 04 LONG 084 07 21)																		
71-08-19	9	0	—	—	—	—	0	—	—	—	1	—	<.5	—	—	—	—	—
04175610 - RIVER RAISIN NEAR MANCHESTER, MICH. (LAT 42 09 00 LONG 084 01 26)																		
71-08-19	10	0	—	—	—	—	0	—	—	—	1	—	<.5	—	—	—	—	—
04175630 - RIVER RAISIN NEAR CLINTON, MICH. (LAT 42 05 37 LONG 083 59 17)																		
71-08-19	8	0	—	—	—	—	1	—	—	—	0	—	<.5	—	3	—	6	90
04175650 - IRON CREEK NEAR CLINTON, MICH. (LAT 42 05 37 LONG 083 59 17)																		
71-08-19	0	0	—	—	—	—	0	—	—	—	0	—	.5	—	—	—	—	—

ANALYSES FOR SELECTED MINOR ELEMENTS, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971.—Continued

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM-(CR) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
04176350 - SALINE RIVER AT BENTON, MICH. (LAT 42 08 18 LONG 083 52 08)																		
71-08-18	4	0	--	--	--	--	0	--	--	--	2	--	<.5	--	--	--	--	--
04176365 - SALINE RIVER ABOVE SALINE, MICH. (LAT 42 10 16 LONG 083 49 32)																		
71-08-18	4	0	--	--	--	--	0	--	--	--	1	--	<.5	--	--	--	--	--
04176370 -SALINE RIVER TRIBUTARY NEAR SALINE, MICH. (LAT 42 10 34 LONG 083 49 17)																		
71-08-18	7	0	--	--	--	--	0	--	--	--	0	--	<.5	--	--	--	--	--
04176399 - KOCK-WARNER DRAIN AT SALINE, MICH. (LAT 42 09 22 LONG 083 46 29)																		
71-08-18	0	0	--	--	--	--	0	--	--	--	2	--	<.5	--	--	--	--	--
04176418 - SALINE RIVER AVOVE MILAN, MICH. (LAT 42 05 05 LONG 083 41 45)																		
71-08-17	8	0	--	--	--	--	0	--	--	--	0	--	7.5	--	34	--	6	360
04176550 - RIVER RAISIN AT MOUTH NEAR MONROE, MICH. (LAT 41 53 33 LONG 083 20 12)																		
70-10-14	30	1	--	--	--	0	0	--	--	--	4	--	.0	.5	--	--	--	160

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA-CHLOR (UG/L)
04001000 - WASHINGTON CREEK AT WINDIGO, MICH. (LAT 47 55 15 LONG 089 08 50)												
OCT., 1970 15...	1130	--	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	--	0.00
04097140 - INDIAN LAKE NEAR VICKSBURG, MICH. (LAT 42 09 27 LONG 085 27 52)												
JULY, 1971 30...	1130	3	.00	--	.00	.00	.00	.00	.00	.00	.00	.00
04097187 - LONG LAKE NEAR KALAMAZOO, MICH. (LAT 42 11 09 LONG 085 32 17)												
JULY, 1971 30...	1030	10	.00	--	.00	.00	.00	.00	.00	.00	.00	.00
04097190 - WEST LAKE NEAR KALAMAZOO, MICH. (LAT 42 10 57 LONG 085 33 51)												
JULY, 1971 30...	0830	5	.00	--	.00	.00	.00	.00	.00	.00	.00	.00
04102186 - S. BRANCH PAW PAW R. AT PAW PAW, MICH. (LAT 41 13 03 LONG 085 53 55)												
JULY, 1971 15...	1400	13	.00	--	Trace	.00	.00	.00	.00	.00	.00	.00
04105675 - KALAMAZOO RIVER AT AUGUSTA, MICH. (LAT 42 20 07 LONG 085 20 43)												
JULY, 1971 29...	1055	7	.00	--	.00	.00	.00	.00	.00	.00	.00	.00
04105767 - GULL LAKE NEAR RICHLAND, MICH. (LAT 42 09 27 LONG 085 27 52)												
JULY, 1971 29...	1015	3	.00	--	.00	.00	.00	.00	.00	.00	.00	.00
04106770 - KALAMAZOO RIVER NEAR COOPER CENTER, MICH. (LAT 42 22 38 LONG 085 34 45)												
JULY, 1971 29...	1420	10	.00	--	.00	.00	.00	.00	.00	.00	.00	.00
04174050 - HURON RIVER AT DELHI MILLS, MICH. (LAT 42 20 01 LONG 083 48 04)												
AUG., 1971 19...	0915	7.0	.00	--	.00	.00	.00	.00	.00	.00	.00	.00

DATE	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DI-AZINON IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)
04001000 - WASHINGTON CREEK AT WINDIGO, MICH.									
OCT., 1970 15...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
04097190 - WEST LAKE NEAR KALAMAZOO, MICH.									
JULY, 1971 30...	.0	--	56	20	--	.0	.0	.0	.0
04105767 - GULL LAKE NEAR RICHLAND, MICH.									
JULY, 1971 29...	.0	--	11	13	--	5.6	.1	.0	.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971--Continued

DATE	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARA-THION (UG/L)	TOTAL PCB (UG/L)	TOTAL TRI-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
04001000 - WASHINGTON CREEK AT WINDIGO, MICH.											
OCT., 1970 15...	0.00	0.00	0.00	0.00	--	0.00	--	--	0.00	0.00	0.00
04097140 - INDIAN LAKE NEAR VICKSBURG, MICH.											
JULY, 1971 30...	--	.00	.00	.00	.00	.00	.0	.00	.00	.00	.00
04097187 - LONG LAKE NEAR KALAMAZOO, MICH.											
JULY, 1971 30...	--	.00	.00	.00	.00	.00	.0	.00	.03	.00	.10
04097190 - WEST LAKE NEAR KALAMAZOO, MICH.											
JULY, 1971 30...	--	.00	.00	.00	.00	.00	.0	.00	.46	.00	63
04102186 - S. BRANCH PAW PAW R. AT PAW PAW, MICH.											
JULY, 1971 15...	--	.00	.00	.00	.00	.00		.00	.03	.00	.01
04105675 - KALAMAZOO RIVER AT AUGUSTA, MICH.											
JULY, 1971 29...	--	.00	.00	.00	.00	.00	.0	.00	.14	.37	.00
04105767 - GULL LAKE NEAR RICHLAND, MICH.											
JULY, 1971 29...	--	.00	.00	.00	.00	.00	.0	.00	.03	.00	.00
04106770 - KALAMAZOO RIVER NEAR COOPER CENTER, MICH.											
JULY, 1971 29...	--	.00	.00	.00	.00	.00	.0	.00	.05	.00	.02
04174050 - HURON RIVER AT DELHI MILLS, MICH.											
AUG., 1971 19...	--	.00	.00	.00	.00	.00	.0	.00	.20	.00	.70

DATE	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)	ZINDANE IN BOTTOM DE-POSITS (UG/KG)	MALA-THION IN BOTTOM DE-POSITS (UG/KG)	METHYL PARA-THION IN BOT-TOM DE-POSITS (UG/KG)	PARA-THION IN BOTTOM DE-POSITS (UG/KG)	2,4-D IN BOTTOM DE-POSITS (UG/KG)	2,4,5-T IN BOTTOM DE-POSITS (UG/KG)	SILVEX IN BOTTOM DE-POSITS (UG/KG)
04001000 - WASHINGTON CREEK AT WINDIGO, MICH.								
OCT., 1970 15...	0.0	0.0	0.0	0.0	0.0	--	--	--
04097190 - WEST LAKE NEAR KALAMAZOO, MICH.								
JULY, 1971 30...	--	.0	--	--	--	1.2	0.0	0.0
04105767 - GULL LAKE NEAR RICHLAND, MICH.								
JULY, 1971 29...	--	.0	--	--	--	--	--	--

[Values prefaced by the letter "E" are estimates. Geologic Units: 112, Pleistocene Series (PLSC, undifferentiated; SAND, sand; GRVL, gravel); 327 PSLVL, Lower Pennsylvanian Series; 337 MSSPL, Lower Mississippian Series; 339, Kinderhookian Series (BERE, Berea Sandstone; CLDR, Coldwater Shale);

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

LOCAL WELL NUMBER	NAME	LATITUDE/ LONGITUDE	GEO- LOGIC UNIT	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
				ALGER COUNTY							
47N18W10AA	01 PRNL TW1	462926086320201	--	71-06-22	300	7.1	--	--	38	16	3.0
47N18W30CB	01 PRNL TW3	462613086361501	--	71-06-23	300	9.0	--	--	28	10	16
				KALAMAZOO COUNTY							
02S11W10DCB	01 KVP-B 11A	421825085344301	--	70-10-19	--	15	1400	310	81	87	37
			--	71-08-04	--	11	1200	290	140	43	44
02S11W20BBB	01 KNDL 2-A	421643085365601	--	70-12-18	--	18	920	62	65	27	9.8
02S11W22CCAA	01 CNTRL 1-C	421641085350501	--	70-10-19	--	15	90	76	63	58	28
			--	71-08-04	--	15	130	170	150	35	30
03S11W12CBC	01 UPJOHN-29	421315085330001	--	71-07-30	--	16	630	280	75	23	5.0
				LENAWEE COUNTY							
07S04E22BB	01 SIMPLEX..	415140083563001	--	71-08-18	128	9.6	620	45	44	14	400
07S05E04C	01 VAN DUZEN	415335083495001	112GRVL	71-08-19	97	--	--	--	--	--	--
07S05E16BBB	01 SHELDON..	415240083504001	--	71-08-18	85	8.6	1100	80	110	49	790
07S05E34C	01 NEYRINCK	414925083493001	343TRVR	71-08-19	160	--	--	--	--	--	--
07S04E06D	01 LEN. DISP	415330083593501	112SAND	71-08-19	48	--	--	--	--	--	--
07S04E12B	01 GANNO. K.	415305083541001	339CLDR	71-08-20	135	--	--	--	--	--	--
				MACOMB COUNTY							
05N14E02BAA	01 VLASIC #2	425346082461200	--	71-08-10	240	--	--	--	--	--	--
				MARQUETTE COUNTY							
44N26W12DDD	01 MICH. DNR	461312087293201	112SAND	70-10-21	34	--	--	--	11	4.4	--
44N26W28DA	01 MICH. DNR	461051087332701	--	70-10-26	28	--	--	--	53	22	--
45N23W07ADD	01 JOHNSON..	461843087131901	--	70-10-20	58	--	--	--	53	22	--
45N24W20DBB	01 MICH. DNR	461653087195901	--	70-10-19	30	--	--	--	12	2.4	--
45N25W25ABB	01 PEN W GSA	461627087223201	112SAND	70-10-19	47	--	--	--	6.4	2.9	--
45N25W28AB	01 FORS. TWP	461625087261301	--	70-11-10	--	--	--	--	20	4.9	--
45N25W28AB	02 FORS. TWP	461625087261302	--	70-11-18	--	--	--	--	18	3.9	--
45N26W26DAD	01 QUEEN. P.	461553087305201	--	70-10-20	77	--	--	--	27	7.8	--
45N26W29CDD	01 MICH. DNR	461545087350801	--	70-10-20	30	--	--	--	27	11	--
45N28W11ABC	01 N WOODS C	461857087461501	--	70-10-16	180	--	--	--	26	11	--
45N28W11ADA	01 KELLER. F	461851087454301	--	70-10-16	60	--	--	--	22	8.7	--
45N30W02DAA	01 KERKOLA..	461930088004701	--	70-10-09	117	--	--	--	29	11	--
45N30W05CA	01 ADAMS. G.	461930088051501	112SAND	70-10-09	52	--	--	--	31	12	--
45N30W05CA	02 ADAMS. H.	461922088051901	--	70-10-09	52	--	--	--	37	16	--
45N30W22ACC	01 MICH. DNR	461700088022801	--	70-10-15	54	--	--	--	38	16	--
45N30W26CAA	01 LAANENEN	461603088005801	--	70-10-15	75	--	--	--	65	22	--
45N30W26DDD	01 OATEMA. H	461545088005601	422AKSL	70-10-15	137	--	--	--	69	30	--
45N30W28BCA	01 HILL. D.	461618088043001	--	70-10-09	60	--	--	--	47	25	--
45N30W30BDA	01 BRAMMER..	461609088063401	--	70-10-09	50	--	--	--	30	16	--
46N23W07CCB	01 BERGDAHL	462342087142701	--	70-10-02	101	--	--	--	69	36	--
46N23W30DAD	01 EMAN L CH	462109087131501	--	70-10-01	85	--	--	--	30	18	--
46N29W18AB	01 REP TWP 4	462304087584701	--	70-11-13	--	--	--	--	28	11	--
46N29W30AB	01 . .	462135087583901	--	70-11-13	60	--	--	--	28	12	--
46N30W22AB	01 GRANT. R.	462228088020301	--	70-10-09	51	--	--	--	18	9.7	--
47N23W03ABD	01 HICKS. C.	463021087095301	--	70-10-06	50	--	--	--	20	6.3	--
47N24W10AC	01 BRITTON..	462915087173001	112SAND	70-10-02	28	--	--	--	5.2	1.7	--
47N24W11BDB	01 RUTHERFORD	462917087163801	--	70-10-02	204	--	--	--	35	6.3	--
47N24W15C	01 MICH D.C.	462805087180501	--	70-10-01	145	--	--	--	46	3.4	--
47N24W21DDA	01 BERRYMAN	462706087182101	--	70-10-21	125	--	--	--	34	7.3	--
47N24W22DCD	01 WEST. L.S	462658087172601	--	70-10-01	126	--	--	--	--	--	--
47N24W35BAA	01 HILLCREST	462604087162801	422AKSL	70-10-01	220	--	--	--	40	12	--
47N24W35BAA	02 HILLCREST	462602087162601	--	70-10-01	180	--	--	--	30	12	--
47N24W35DCA	01 ZERBEL. L	462524087160001	--	70-10-01	130	--	--	--	6.4	3.4	--
47N26W29BC	01 RICH. TWP	462642087352901	--	70-11-10	--	--	--	--	34	18	--
47N26W36BB	01 USGS OBSV	462558087303501	--	70-10-26	--	--	--	--	30	7.3	--
47N27W08BB	01 ISHP TWP2	462932087425001	--	71-06-14	56	--	--	--	44	16	--
47N28W12CA	01 G-E TWP 2	462903087451701	--	70-11-12	--	--	--	--	29	9.7	--
48N25W18CCC	01 PETERS. L	463305087291201	--	70-10-14	70	--	--	--	34	6.3	--
48N26W23ACA	01 DENN. J.	463240087305701	--	70-10-16	40	--	--	--	20	2.9	--
48N29W31CB	01 CHAMP. H.	463043087591201	422AKSL	70-11-12	--	--	--	--	13	8.0	--
49N26W12DDB	01 KREIG. R.	463413087302501	--	70-10-13	66	--	--	--	32	11	--
50N26W19BB	01 FORTEN. E	464315087363701	--	70-10-13	99	--	--	--	31	6.3	--
50N27W14ABB	01 FRAYLEY..	464410087383701	--	70-10-13	92	--	--	--	45	5.8	--
50N27W14BAA	01 RYERSE. C	464410087384501	--	70-10-13	96	--	--	--	36	4.9	--
50N28W03CC	01 BITTNER..	460407087470401	--	70-10-07	--	--	--	--	28	4.4	--
50N28W04CB	01 HACKEL. M	464530087491001	--	70-10-08	23	--	--	--	5.6	2.9	--
50N28W13BD	01 GANNON CO	464355087450601	--	70-10-07	--	--	--	--	18	7.8	--
50N29W10AA	01 H LAND CO	464503087543501	--	70-10-07	--	--	--	--	6.4	1.9	--
51N27W01CAC	01 PICK. J.	465031087404501	--	70-10-14	126	--	--	--	23	10	--

342 CTQN, Chataquan Series; 343 TRVR, Traverse Group; 345, Erian Series (ERIN, undifferentiated; DUND, Dundee Limestone); 348, Ulsterian Series (DRRV, Detroit River Group; SLVN, Sylvania Sandstone); 400 PCMB, Precambrian Era, undifferentiated; 422 AKSL, Animikie Slate]

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS_SOLVED NITRATE (NO3) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
ALGER COUNTY--Continued												
6.9	178	19	2.5	.3	.1	--	--	160	14	297	8.2	--
2.1	135	32	3.0	.3	.0	--	--	110	0	287	8.1	--
KALAMAZOO COUNTY--Continued												
5.3	438	190	70	.2	.3	--	723	560	200	1110	7.6	15.5
5.9	424	170	83	.2	.0	--	756	530	180	1150	7.8	14.5
1.1	298	22	13	.2	.1	--	281	270	29	496	7.7	10.0
3.3	274	150	60	.1	3.7	--	553	400	170	845	7.8	13.0
3.4	412	140	57	.1	.0	--	692	520	180	1020	7.6	12.5
1.0	288	51	6.0	.2	.0	--	317	280	46	526	7.5	14.0
LENAWEE COUNTY--Continued												
4.2	175	36	640	1.9	.1	--	1210	170	24	2260	7.4	12.0
--	98	.0	1540	--	.0	.000	--	490	410	5000	7.9	16.0
6.0	117	5.6	1500	1.2	.0	--	2880	480	380	4700	7.1	14.0
--	559	.0	258	--	.0	.010	--	92	0	1600	8.3	15.5
--	403	77	4.0	--	.0	.006	--	378	47	700	7.7	20.0
--	205	.0	1300	--	.0	.029	--	320	150	4000	8.2	15.0
MACOMB COUNTY--Continued												
--	285	5.0	196	--	--	.000	--	174	0	1020	7.5	11.5
MARQUETTE COUNTY--Continued												
--	49	E6.6	1.0	--	E.0	--	--	46	5	100	6.7	--
--	264	E10	3.0	--	E.0	--	--	220	6	380	7.8	--
--	222	E15	21	--	E.4	--	--	220	41	320	7.7	--
--	39	E6.6	1.0	--	E.6	--	--	40	4	60	8.6	--
--	27	E.0	3.0	--	E.0	--	--	28	6	<50	6.3	--
--	68	E.0	1.0	--	E.0	--	--	70	14	120	7.6	--
--	71	E9.0	2.0	--	E.5	--	--	61	3	120	7.7	--
--	124	E.0	.0	--	E.0	--	--	100	0	120	7.9	--
--	139	E5.0	.0	--	E.0	--	--	110	0	180	7.5	--
--	117	E1.4	.0	--	E.0	--	--	110	14	220	7.9	--
--	137	E.0	.0	--	E.0	--	--	91	0	220	7.6	--
--	137	E9.0	1.0	--	E.0	--	--	120	5	220	8.1	--
--	156	E6.8	.0	--	E.7	--	--	130	0	240	8.1	--
--	198	E5.8	2.0	--	E.4	--	--	160	0	280	7.9	--
--	190	E10	1.0	--	E.0	--	--	160	5	300	8.0	--
--	266	E8.0	1.0	--	E.8	--	--	250	35	440	8.1	--
--	322	E64	200	--	E1.4	--	--	300	32	1200	8.2	--
--	254	E12	1.0	--	E.0	--	--	220	12	380	7.7	--
--	171	E11	.0	--	E.0	--	--	140	1	260	7.9	--
--	268	E13	68	--	E15	--	--	320	100	600	7.0	--
--	155	E10	2.0	--	E.0	--	--	150	22	220	7.4	--
--	110	E17	9.0	--	E.0	--	--	120	25	220	7.8	--
--	132	E9.0	1.0	--	E.0	--	--	120	11	220	8.1	--
--	102	E.0	1.0	--	E.5	--	--	85	1	160	7.9	--
--	98	E.0	21	--	E.0	--	--	76	0	180	6.7	--
--	10	E.0	16	--	E.9	--	--	20	12	60	6.4	--
--	171	E.0	5.0	--	E2.9	--	--	110	0	240	8.3	--
--	137	E10	3.0	--	E12	--	--	130	16	220	8.0	--
--	149	E7.4	1.0	--	E2.2	--	--	120	0	240	7.8	--
--	120	E.0	9.0	--	E4.0	--	--	--	--	200	7.8	--
--	218	E10	2.0	--	E.0	--	--	150	0	260	7.9	--
--	149	E.0	4.0	--	E1.0	--	--	120	2	240	8.1	--
--	83	E7.2	1.0	--	E.0	--	--	30	0	160	8.7	--
--	132	E.0	31	--	E.6	--	--	160	51	300	6.7	--
--	132	E.0	1.0	--	E.0	--	--	110	0	200	7.4	--
--	190	E15	7.0	--	E1.1	--	--	174	18	320	7.6	--
--	105	14	5.0	--	E.0	--	--	110	26	200	8.0	--
--	124	E6.6	6.0	--	E1.2	--	--	110	9	220	7.8	--
--	76	E25	3.0	--	E.3	--	--	62	0	140	8.1	--
--	61	E5.8	6.0	--	E1.0	--	--	65	15	120	6.8	--
--	171	E.0	4.0	--	E.0	--	--	130	0	300	7.9	--
--	49	E10	23	--	E50	--	--	100	63	280	6.2	--
--	183	E7.6	.0	--	E.0	--	--	140	0	280	7.5	--
--	137	E9.8	.0	--	E.0	--	--	110	0	240	6.8	--
--	110	E5.8	1.0	--	E1.5	--	--	88	0	180	7.9	--
--	15	E10	26	--	E1.0	--	--	26	14	120	6.2	--
--	71	E.0	.0	--	E.0	--	--	77	19	100	7.5	--
--	34	E.0	.0	--	E.0	--	--	24	0	50	7.1	--
--	117	E7.4	.0	--	E1.7	--	--	99	3	200	7.1	--

CHEMICAL ANALYSES OF GROUND WATER IN MICHIGAN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

LOCAL WELL NUMBER	NAME	LATITUDE/ LONGITUDE	GEO- LOGIC UNIT	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
				MARQUETTE COUNTY							
51N27W09DAC 01	BAY CLIFF	464940087440501	400PCMB	70-10-14	683	--	--	--	26	1.9	--
51N27W15BDC 01	POWL. TWP	464907087440001	--	70-10-14	156	--	--	--	43	7.8	--
51N28W01BA 01	HURON C 4	465053087475401	--	70-10-08	55	--	--	--	31	7.8	--
52N28W21DB 01	HURON C 1	465308087515301	--	70-10-08	200	--	--	--	23	4.4	--
52N28W21DB 02	HURON C 2	465308087515302	--	70-10-08	200	--	--	--	24	3.4	--
				MONROE COUNTY							
05S07E15BB 01	IRBY, J.	420320083354001	--	71-08-19	94	12	90	32	35	5.8	13
05S07E25BBB 01	HOMRICH .	420140083332001	--	71-09-02	48	--	--	--	--	--	--
05S07E28CCB 01	ALLEN, G.	420100083365001	--	71-08-20	76	--	--	--	--	--	--
05S08E03BBC 01	BAILEY .	420500083284001	--	71-08-18	83	--	--	--	--	--	--
05S08E29BCC 01	BURGMAN .	420120083311001	--	71-08-18	650	--	--	--	--	--	--
05S08E32AA 01	M STONE.	420040083302001	348SLVN	71-08-19	142	10	480	39	170	55	38
05S09E21BAB 01	WHELAN, A	420300083223001	--	71-08-19	69	18	1100	69	200	77	72
05S09E31DAC 01	BELDOCK .	420040083241001	--	71-08-20	50	--	--	--	--	--	--
06N07E35BBB 01	PPL CHUR.	415520083341001	--	71-08-18	100	17	1700	86	180	26	8.2
06S06E35AA 01	ECKEL, J.	415520083402001	--	71-09-02	18	--	--	--	--	--	--
06S07E09BCC 01	KRUGER, C	415850083365001	--	71-08-20	85	--	--	--	--	--	--
06S07E21CCC 01	OTT, B. .	415630083365001	--	71-08-20	29	--	--	--	--	--	--
06S08E01CBC 01	ELLIOT, G	415930083261001	--	71-08-18	75	--	--	--	--	--	--
06S08E31CAA 01	BREITNER	415500083314001	--	71-08-19	51	10	650	45	470	97	9.7
06S09E05BDD 01	GUY, J. .	420000083232001	--	71-08-18	55	--	--	--	--	--	--
06S09E09BCC 01	LANGTON .	415950083232001	--	71-08-19	70	11	100	37	95	33	5.3
07S06E03CABC01	PTRSBG WC	425344083422101	--	71-08-18	8.5	14	150	62	99	27	19
07S06E18D 01	BEADLE ..	415155083452001	--	71-08-19	67	--	--	--	--	--	--
07S07E01CDB 01	METZ, J.	415355083324001	--	71-08-19	80	--	--	--	--	--	--
07S07E26DDA 01	WRTNBRGR.	415030083331001	--	71-08-19	50	--	--	--	--	--	--
07S08E05ABB 01	WILCUSH .	415430083301501	--	71-08-18	52	--	--	--	--	--	--
07S08E21CD 01	HAKASON .	415115083291001	--	71-08-19	34	8.4	500	71	150	49	9.0
				ST CLAIR COUNTY							
05N15E 4ACD 01	CARMEN, T	425335082411101	--	71-08-10	69	--	--	--	--	--	--
05N15E10ABD 01	PIERCE, G	425250082393301	--	71-08-10	59	16	50	0	51	22	80
05N15E10BAA 01	LIPPSTRE.	425306082400601	--	71-08-10	48	--	--	--	--	--	--
06N14E 18CB 01	GEN. TEL.	425857082455101	--	71-08-10	50	--	--	--	--	--	--
06N14E 9DCC 01	CONE, W..	425720082483501	--	71-08-10	76	--	--	--	--	--	--
06N14E12DBB 01	DUNSMORE	425748082450700	--	71-08-10	54	--	--	--	--	--	--
06N14E16DDD 01	FRALEY, J	425627082481300	--	71-08-10	130	15	550	40	58	17	190
06N14E27CBB 01	SMITH, D.	425558082475201	--	71-08-10	94	--	--	--	--	--	--
06N14E29DDD 01	DUPONT, H	425439082491500	--	71-08-10	97	--	--	--	--	--	--
06N14E30ACC 01	BROADWAY.	425505082510800	--	71-08-10	92	20	1600	60	94	35	18
06N14E32DDD 01	MC MILLAN	425346082491901	--	71-08-10	164	--	--	--	--	--	--
06N14E35CBD 01	MEMPHIS 2	425402082463001	--	71-08-09	87	15	150	0	42	30	120
06N14E36BCD 01	THIBODEAU	425418082451801	--	71-08-10	134	--	--	--	--	--	--
06N15E 1AAB 01	CONRAD, H	425826082374501	--	71-08-10	88	--	--	--	--	--	--
06N15E 2CBG 01	WOOLLEY..	425847082394901	112SAND	71-08-10	76	--	--	--	--	--	--
06N15E 3BAA 01	SUGPHENS	425920082403201	--	71-08-11	54	--	--	--	--	--	--
06N15E 9BBB 01	COVE, E..	425758082414301	--	71-08-09	39	--	--	--	--	--	--
06N15E17AAB 01	DOVE, H..	425728082423001	--	71-08-09	58	--	--	--	--	--	--
06N15E20DDD 01	E LETARTE	425547082415201	--	71-08-10	89	--	--	--	--	--	--
06N15E31CCA 01	SHIRKEY..	425403082440601	--	71-08-10	131	--	--	--	--	--	--
07N14E17AAA 01	GATTSCHA.	430232082495701	112PLSC	71-08-11	57	--	--	--	--	--	--
07N14E19CCD 01	WAGNER, L	430050082515501	112PLSC	71-08-10	72	--	--	--	--	--	--
07N14E20DCC 01	O'DELL, W	430050082502800	--	71-08-10	71	--	--	--	--	--	--
07N14E25CCD 01	KEEGAN, J	430004082450201	--	71-08-10	41	--	--	--	--	--	--
07N14E32DDD 01	KHATTENY	425907082494801	--	71-08-10	39	19	--	--	77	29	7.7
07N14E36CCA 01	COM SAV B	425928082455501	--	71-08-10	40	--	1800	53	--	--	--
07N15E 1DAD 01	DENEWETH.	430403082381501	--	71-08-11	94	--	--	--	--	--	--
07N15E15DDC 01	JANKOWSKY	430200082403801	--	71-08-11	--	--	--	--	--	--	--
07N15E16CDD 01	DUDAS, D.	430157082421801	--	71-08-11	--	--	--	--	--	--	--
07N15E25ABA 01	MCDONALDS	430109082382001	--	71-08-11	--	--	--	--	--	--	--
08N14E14CAC 01	MOLESHOR.	430712082473001	--	71-08-09	--	--	--	--	--	--	--
08N14E25CAD 01	HODGINS..	430528082463001	--	71-08-09	--	26	3300	85	140	63	28
08N14E29DCD 01	MULLINS..	430508082503001	--	71-08-11	--	--	--	--	--	--	--
08N15E22CBC 01	MIDDLETON	430633082415301	--	71-08-25	--	--	--	--	--	--	--
08N15E22CCB 01	LANDON, W	430623082415301	--	71-08-25	--	--	--	--	--	--	--
08N15E26ADA 01	C OF CHRI	430607082393701	--	71-08-11	102	19	3300	14	77	38	56
08N15E33DCC 01	FLEMING..	430431082421901	--	71-08-11	75	--	--	--	--	--	--
06N15E16CBA 01	SULKOWSKI	425703082415301	--	71-08-09	164	15	550	40	58	17	190
				WASHTENAW COUNTY							
		421128083401700	--	71-04-07	--	--	--	--	110	21	--
1S 3E13CDDC1		422302084013901	112PLSC	71-05-05	105	--	--	--	75	18	--

CHEMICAL ANALYSES OF GROUND WATER IN MICHIGAN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS_ SOLVED NITRATE (NO3) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
MARQUETTE COUNTY--Continued												
--	120	E.0	7.0	--	E3.5	--	--	73	0	240	6.9	--
--	151	E7.4	9.0	--	E.0	--	--	140	16	280	7.6	--
--	132	E.0	.0	--	E.5	--	--	110	1	200	7.5	--
--	95	E.0	11	--	E.0	--	--	76	0	140	8.2	--
--	95	E.0	2.0	--	E.0	--	--	74	0	140	7.7	--
MONROE COUNTY--Continued												
1.0	160	3.2	5.0	1.0	.3	--	157	110	0	268	7.3	12.0
--	251	E100	2.0	--	.0	.032	--	68	0	675	7.8	17.0
--	246	E.0	5.0	--	.0	.023	--	146	0	360	7.6	17.0
--	251	E212	41	--	.0	.016	--	326	120	850	7.6	11.5
--	368	E320	16	--	.0	.032	--	576	270	1000	7.8	15.5
3.0	200	500	24	1.7	.0	--	1010	650	490	1290	7.1	12.0
4.5	345	430	160	1.0	.1	--	1250	820	530	1680	7.6	12.5
--	281	E258	2.0	--	.0	.000	--	448	220	850	7.9	14.0
1.9	441	180	11	.9	.0	--	670	560	200	963	7.8	13.0
--	290	E80	102	--	53	.006	--	386	150	995	8.2	19.5
--	383	E290	9.0	--	.0	.072	--	552	240	950	7.7	14.5
--	342	E75	66	--	.1	.039	--	318	37	800	7.6	17.5
--	207	E480	5.0	--	.0	.000	--	618	450	1000	7.6	16.0
2.7	255	1300	14	1.4	.8	--	2240	1600	1400	2290	7.5	13.0
--	237	E1450	4.0	--	.0	.000	--	1610	1200	2200	7.6	13.5
1.7	320	100	12	.7	.2	--	457	370	110	680	7.6	15.0
1.6	254	180	8.0	1.3	.0	--	509	360	150	724	7.3	11.0
--	178	E15	6.0	--	.0	.029	--	134	0	380	7.9	14.5
--	229	E1150	22	--	.0	.010	--	1560	1400	2200	7.8	15.0
--	290	E1100	15	--	.0	.000	--	1320	1100	2000	7.6	18.0
--	181	E2000	18	--	.0	.000	--	1720	1600	2400	7.8	15.0
1.6	395	150	80	.7	.0	--	714	580	250	1060	7.6	14.5
ST CLAIR COUNTY--Continued												
--	383	17	10	--	.0	--	--	212	0	600	8.3	20.5
2.8	310	36	72	1.1	1.3	--	422	220	0	750	7.7	17.0
--	--	--	--	--	.0	--	--	--	--	780	7.4	18.0
--	346	7.0	13	--	.0	.005	--	25	0	500	8.0	10.0
--	356	9.0	3.0	--	.0	.000	--	286	0	560	8.1	14.5
--	--	--	--	--	.0	--	--	--	--	1000	6.7	24.0
2.5	304	7.6	270	.9	.3	--	--	220	0	1290	7.8	22.0
--	--	--	--	--	.0	--	--	--	--	720	7.3	13.5
--	295	9.0	8.0	--	.0	.000	--	210	0	465	8.2	12.5
1.7	430	50	18	1.0	.2	--	450	380	26	747	7.7	14.0
--	--	--	--	--	.1	--	--	--	--	600	7.7	12.5
3.0	334	30	120	1.2	6.3	--	510	230	0	938	7.7	10.0
--	--	--	--	--	.0	--	--	--	--	700	7.2	--
--	132	9.0	16	--	.0	.000	--	210	102	280	7.8	14.0
--	--	--	--	--	.0	--	--	--	--	540	7.6	17.0
--	--	--	--	--	.4	--	--	--	--	500	7.6	21.0
--	32	37	162	--	.0	.000	--	560	296	1100	7.9	20.0
--	--	--	--	--	.0	--	--	--	--	430	7.3	14.0
--	--	--	--	--	.0	--	--	--	--	825	7.3	14.5
--	--	--	--	--	.0	--	--	--	--	755	7.8	17.0
--	279	E338	3.5	--	.0	--	--	508	280	850	7.2	14.0
--	339	E7.0	5.0	--	.0	.033	--	218	0	510	8.1	16.5
--	--	--	--	--	.0	--	--	--	--	580	7.6	13.0
--	--	--	--	--	.0	--	--	--	--	820	7.2	--
1.2	374	24	2.3	.4	.0	--	340	310	5	580	7.6	18.0
--	--	--	--	--	.0	--	--	--	--	775	7.5	18.0
--	--	--	--	--	.1	--	--	--	--	750	7.2	13.0
--	307	E10	.0	--	.1	.000	--	204	0	450	8.0	13.0
--	353	E10	1.0	--	.0	.000	--	330	40	520	8.1	13.5
--	--	--	--	--	.0	--	--	--	--	360	7.6	13.0
--	245	E5.0	80	--	.0	.006	--	210	9	650	7.9	17.5
3.5	565	180	14	.8	.5	--	738	610	150	1110	7.5	18.0
--	201	E37	116	--	.0	.029	--	145	0	775	7.9	16.0
--	344	E8.0	17	--	1.8	--	--	190	0	560	8.2	17.0
--	322	E9.0	155	--	.0	.006	--	248	0	1000	8.1	11.5
2.6	458	45	36	.9	.8	--	488	350	0	836	7.7	11.0
--	--	--	--	--	.0	.000	--	--	--	--	--	14.0
2.5	304	7.6	270	.9	.3	--	686	220	0	1290	7.8	22.0
WASHTENAW COUNTY--Continued												
--	312	E86	26	--	E.0	--	--	354	98	950	7.1	11.0
--	295	E23	3.0	--	E.0	--	--	264	22	480	7.9	12.0

CHEMICAL ANALYSES OF GROUND WATER IN MICHIGAN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

LOCAL WELL NUMBER	NAME	LATITUDE/ LONGITUDE	GEO- LOGIC UNIT	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
				WASHTENAW COUNTY--Continued							
1S 3E19BCAC1		422229084074401	327PSLVL	71-05-05	130	--	--	--	74	19	--
1S 3E26DDDD1		422116084020801	337MSSPL	71-05-05	200	--	--	--	21	11	--
1S 3E33CBAA1		422040084052101	112PLSC	71-05-05	105	--	--	--	67	18	--
1S 3E36ABCC1		422105084012901	337MSSPL	71-05-05	153	--	--	--	19	7.3	--
1S 4E 1AADB1		422524083542501	112PLSC	71-05-01	78	--	--	--	75	20	--
1S 4E 5CCCC1		422450083594801	112PLSC	71-05-01	89	--	--	--	63	16	--
1S 4E15ADDD1		422335083563001	112PLSC	71-05-01	122	--	--	--	49	16	--
1S 4E19CBAD1		422230084004201	112PLSC	71-05-01	121	--	--	--	69	23	--
1S 4E26ADDD1		422151083551501	112PLSC	71-05-01	126	--	--	--	84	21	--
1S 4E32DDAB1		422038083584901	112PLSC	71-05-01	76	--	--	--	84	18	--
1S 5E34DABC1		422049083493401	112PLSC	71-05-06	86	--	--	--	117	28	--
1S 6E 6ABAA1		422540083460801	112PLSC	70-11-03	116	--	--	--	128	34	--
1S 6E 9ADDA1		422440083433001	112PLSC	71-05-06	80	--	--	--	108	24	--
1S 6E12CCDD1		422413083404901	112PLSC	70-11-05	75	--	--	--	72	24	--
1S 6E19CABA1		422242083463701	112PLSC	70-11-05	155	--	--	--	2.4	5.8	--
1S 6E23BBDC1		422308083420601	112PLSC	70-11-05	68	--	--	--	83	23	--
1S 6E28ACBA1		422210083435201	112PLSC	71-05-06	105	--	--	--	92	18	--
1S 6E35DAAA1		422103083405901	112PLSC	70-11-03	82	--	--	--	98	24	--
1S 7E 1AABA1		422602083331901	112PLSC	71-03-16	248	--	--	--	55	20	--
1S 7E 2DCDC1		422513083344001	112PLSC	71-03-16	137	--	--	--	92	27	--
1S 7E 4CBDC1		422523083373101	112PLSC	71-04-17	99	--	--	--	84	26	--
1S 7E16CBBC1		422338083373101	112PLSC	71-03-16	294	--	--	--	51	18	--
1S 7E24DABC1		422258083331301	112PLSC	71-03-16	186	--	--	--	65	28	--
1S 7E29DABC1		422157083375001	112PLSC	71-03-18	184	--	--	--	64	23	--
2S 3E 4BDDD1		421953084050501	112PLSC	71-04-20	79	--	--	--	73	20	--
2S 3E 6BBBB1		422008084075001	112PLSC	71-04-20	63	--	--	--	80	25	--
2S 3E17DCDD1		421739084055601	337MSSPL	71-05-05	170	--	--	--	73	26	--
2S 3E26DACD1		421610084021601	--	71-04-30	125	--	--	--	123	26	--
			--	71-08-13	125	21	2100	32	120	30	19
2S 4E 9CDCD1		421839083574801	337MSSPL	71-01-15	155	--	--	--	12	4.9	--
2S 4E11AAAD1		421926083550801	112PLSC	71-01-15	123	--	--	--	55	27	--
2S 4E17BBBA1		421834083593901	112PLSC	71-01-15	125	--	--	--	79	20	--
2S 4E22CBCB1		421712083571901	112PLSC	71-05-01	119	--	--	--	51	21	--
2S 4E23ADDD1		421722083550201	112PLSC	71-04-30	112	--	--	--	72	15	--
2S 4E25DCDD1		421604083541001	112PLSC	71-05-01	79	--	--	--	156	33	--
2S 4E32DBAB1		421533083583501	112PLSC	71-01-15	91	--	--	--	93	22	--
2S 5E 1CAAA1		422003083472701	112PLSC	70-10-01	135	--	--	--	136	37	--
2S 5E13ADCA1		421830083470001	112PLSC	71-05-05	170	--	--	--	91	30	--
2S 5E17DDCC1		421754083514501	112PLSC	71-05-05	82	--	--	--	88	23	--
2S 5E22AADB1		421748083491001	112PLSC	71-05-05	94	--	--	--	87	30	--
2S 5E29DCCD1		421610083515501	112PLSC	71-04-30	48	--	--	--	100	26	--
2S 5E34BDDB1		421549083494601	112PLSC	71-04-30	192	--	--	--	103	25	--
2S 6E10BACC1		421949083430701	112PLSC	71-03-30	194	--	--	--	71	27	--
2S 6E12DCCC1		421905083401801	112PLSC	71-03-30	170	--	--	--	79	21	--
2S 6E18ADCD1		421830083455001	112PLSC	71-03-30	58	--	--	--	120	33	--
2S 6E22BBAA1		421805083430101	112PLSC	71-03-30	224	--	--	--	74	34	--
2S 6E23CAAA1		421740083413201	112PLSC	71-03-30	119	--	--	--	120	34	--
2S 6E36ACDC1		421602083400301	112PLSC	71-03-30	176	--	--	--	84	25	--
2S 7E 1ADAA1		422040083325201	342CTON	70-12-04	180	--	--	--	29	18	--
2S 7E 3DDCB1		422003083352701	112PLSC	71-05-06	189	--	--	--	75	18	--
2S 7E 8CCCD1		421904083383601	112PLSC	70-12-04	183	--	--	--	77	25	--
2S 7E14AADD1		421858083340001	112PLSC	70-12-04	188	--	--	--	4.8	1.9	--
2S 7E15DDDC1		421815083351201	112PLSC	70-12-04	95	--	--	--	100	35	--
2S 7E29CCCC1		421629083382801	112PLSC	70-12-03	218	--	--	--	29	8.3	--
2S 7E36DBCC1		421555083330801	112PLSC	70-12-04	111	--	--	--	66	18	--
3S 3E 5CABC1		421423084063101	337MSSPL	70-10-08	175	--	--	--	85	16	--
3S 3E12BCDA1		421350084014801	112PLSC	70-10-08	140	--	--	--	79	21	--
3S 3E16AAAA1		421309084042801	337MSSPL	70-10-08	230	--	--	--	63	29	--
3S 3E17BCCB1		421249084064301	337MSSPL	70-10-06	165	--	--	--	76	21	--
3S 3E23DDDD1		421130084020101	112PLSC	70-10-08	86	--	--	--	93	24	--
3S 3E29BBCD1		421111084063701	112PLSC	70-10-08	78	--	--	--	94	16	--
3S 3E34CBBA1		421005084040901	112PLSC	70-10-08	91	--	--	--	78	20	--
3S 4E 1BBCB1		421550083545601	112PLSC	70-10-15	90	--	--	--	110	11	--
3S 4E 6BBCC1		421457084004801	112PLSC	70-10-15	61	--	--	--	80	19	--
3S 4E15BCCC1		421308083571401	112PLSC	70-10-15	80	--	--	--	76	23	--
3S 4E24DACB1		421157083540201	112PLSC	70-10-05	75	--	--	--	100	31	--
3S 4E32BAAA1		421048083595501	112PLSC	70-10-13	125	--	--	--	76	19	--
3S 4E35CBAA1		421027083555701	112PLSC	70-10-15	92	--	--	--	100	25	--
3S 5E 2CCCB1		421435083490001	112PLSC	70-10-15	280	--	--	--	100	30	--
3S 5E 9BBAA1		421427083510901	112PLSC	70-10-15	79	--	--	--	64	34	--
3S 5E19AABA1		421240083524101	112PLSC	71-03-06	43	--	--	--	103	30	--
3S 5E22DDCD1		421157083490901	112PLSC	70-11-05	94	--	--	--	89	33	--
3S 5E26AABD1		421149083480001	112PLSC	71-05-05	96	--	--	--	94	20	--
3S 6E 5AACD1		421515083443201	112PLSC	71-04-01	88	--	--	--	76	53	--
3S 6E10CCCD1		421348083430101	112PLSC	71-04-01	96	--	--	--	96	18	--
3S 6E12AADD1		421429083393901	342CTON	71-04-07	286	--	--	--	13	5.8	--
3S 6E14DDCD1		421256083405901	112PLSC	71-04-07	147	--	--	--	67	22	--
3S 6E25CABD1		421134083402001	342CTON	71-04-07	286	--	--	--	48	57	--
3S 6E35BAAB1		421108083412501	112PLSC	71-04-07	133	--	--	--	64	26	--
3S 7E 4BBBC1		421530083371901	339BERE	70-12-10	165	--	--	--	59	18	--

CHEMICAL ANALYSES OF GROUND WATER IN MICHIGAN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

WASHTENAW COUNTY--Continued

DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
--	346	E7.5	1.0	--	E.3	--	--	262	0	480	7.4	13.0
--	383	E.0	366	--	E.0	--	--	98	0	1700	7.7	12.0
--	288	E16	5.0	--	E.0	--	--	244	8	430	7.4	12.0
--	266	E.0	11	--	E.0	--	--	78	0	420	8.3	20.0
--	298	E31	5.0	--	E.0	--	--	272	28	460	7.7	12.0
--	276	E18	3.0	--	E.9	--	--	222	0	420	7.7	9.0
--	342	E9.0	61	--	E.0	--	--	188	0	700	7.6	15.0
--	288	E20	3.0	--	E.0	--	--	268	32	440	7.3	11.0
--	376	E10	2.0	--	E.0	--	--	298	0	520	7.2	11.0
--	339	E21	5.0	--	E.0	--	--	286	8	500	7.4	15.0
--	425	E62	8.0	--	E.0	--	--	408	60	700	7.5	11.0
--	373	E13	193	--	E.0	--	--	456	150	1100	7.4	12.0
--	361	E60	14	--	E.0	--	--	366	70	650	7.3	14.0
--	366	E.0	--	--	E.0	--	--	276	0	500	7.5	13.0
--	442	E25	10	--	E.0	--	--	30	0	750	7.7	13.0
--	368	E6.6	.0	--	E.0	--	--	300	0	500	7.6	11.0
--	415	E.0	3.0	--	E.0	--	--	304	0	600	7.4	12.0
--	371	E40	12	--	E.0	--	--	344	40	500	7.4	12.0
--	342	E5.8	.0	--	E.0	--	--	218	0	500	7.8	9.0
--	381	E24	1.0	--	E.0	--	--	340	28	600	7.5	13.0
--	344	E36	3.0	--	E.0	--	--	318	36	600	7.8	12.0
--	390	E5.8	4.0	--	E.0	--	--	204	0	560	7.7	11.0
--	381	E5.0	26	--	E.0	--	--	278	0	650	7.8	10.0
--	381	E6.6	19	--	E.0	--	--	256	0	650	7.6	10.0
--	320	E6.7	7.0	--	E.0	--	--	264	2	550	7.5	13.0
--	344	E18	2.0	--	E.0	--	--	304	22	580	7.7	10.0
--	381	E8.2	2.0	--	E.0	--	--	290	0	520	7.3	12.0
--	398	E44	50	--	E.0	--	--	412	86	750	7.3	12.0
2.2	400	E52	61	.8	.1	--	544	420	92	854	7.5	14.0
--	398	E7.4	9.0	--	E.0	--	--	50	0	650	8.2	13.5
--	310	E7.4	1.0	--	E.0	--	--	250	0	540	7.8	9.0
--	324	E23	4.0	--	E.0	--	--	278	12	580	7.6	10.0
--	344	E7.5	10	--	E.0	--	--	214	0	500	7.6	12.0
--	317	E5.8	6.0	--	E.0	--	--	240	0	480	7.4	11.0
--	451	E100	25	--	E.0	--	--	522	152	900	7.2	12.0
--	329	E44	9.0	--	E.0	--	--	324	54	650	7.7	11.0
--	412	E86	77	--	E2.9	--	--	494	156	900	7.4	17.5
--	415	E.0	4.0	--	E.0	--	--	348	8	600	7.7	12.0
--	329	E22	122	--	E.0	--	--	312	42	900	7.6	12.0
--	376	E6.7	114	--	E.0	--	--	340	32	900	7.7	12.0
--	371	E29	7.0	--	E.3	--	--	354	50	600	7.7	12.0
--	388	E37	5.0	--	E.0	--	--	358	40	600	7.8	13.0
--	398	E.0	12	--	E.0	--	--	286	0	650	7.3	12.0
--	395	E.0	12	--	E.0	--	--	286	0	650	7.4	11.0
--	371	E90	38	--	E.0	--	--	424	120	900	7.0	9.0
--	329	E14	86	--	E.0	--	--	324	54	800	7.5	9.0
--	395	E120	21	--	E.0	--	--	434	110	850	7.2	11.0
--	388	E11	40	--	E.0	--	--	312	0	750	7.6	11.0
--	224	E.0	470	--	E.0	--	--	148	0	1400	7.9	11.5
--	378	E.0	15	--	E.0	--	--	262	0	580	7.5	16.0
--	403	E11	6.0	--	E.0	--	--	296	0	480	8.3	12.0
--	261	E.0	30	--	E.0	--	--	20	0	400	8.6	11.0
--	471	E29	5.0	--	E.0	--	--	392	6	580	7.7	11.5
--	271	E.0	495	--	E.0	--	--	106	0	1600	8.2	21.5
--	303	E.0	2.0	--	E.0	--	--	238	0	360	7.7	11.0
--	305	E22	1.0	--	E.0	--	--	278	28	460	7.6	13.0
--	344	E8.4	1.0	--	E.0	--	--	284	2	460	7.5	15.0
--	368	E11	1.0	--	E.0	--	--	276	0	400	7.7	14.0
--	368	E6.0	.0	--	E.0	--	--	278	0	480	7.8	12.0
--	337	E40	40	--	E.0	--	--	332	56	650	7.7	15.0
--	237	E8.4	1.0	--	E.0	--	--	298	104	500	7.6	15.0
--	290	E36	2.0	--	E.0	--	--	276	38	460	7.6	10.5
--	410	E5.6	13	--	E.0	--	--	322	0	600	7.6	13.0
--	344	E9.8	.0	--	E.0	--	--	322	0	500	7.6	14.0
--	368	E5.8	3.0	--	E.7	--	--	286	0	540	7.6	13.0
--	388	E60	5.0	--	E.0	--	--	376	58	700	7.5	1.1
--	359	E.0	2.0	--	E.0	--	--	266	0	520	7.7	13.0
--	376	E38	1.0	--	E.0	--	--	356	48	600	7.5	12.0
--	434	E17	3.0	--	E.0	--	--	374	18	650	7.6	14.0
--	305	E46	7.0	--	E.0	--	--	300	50	560	7.8	12.0
--	444	E40	4.0	--	E.0	--	--	380	16	800	7.5	9.0
--	422	E7.4	5.0	--	E.0	--	--	356	10	600	7.6	12.0
--	344	E8.2	6.0	--	E.0	--	--	316	34	460	7.6	14.0
--	383	E80	1.0	--	E.7	--	--	408	94	900	7.4	10.0
--	320	E48	6.0	--	E.0	--	--	314	52	650	7.3	12.0
--	334	E10	145	--	E.0	--	--	56	0	1300	8.1	17.0
--	371	E5.8	.0	--	E.0	--	--	256	0	700	7.4	13.0
--	310	E9.6	80	--	E.0	--	--	356	102	1100	7.1	12.0
--	361	E8.0	2.0	--	E.0	--	--	266	0	700	7.6	12.0
--	293	E13	28	--	E.0	--	--	220	0	440	7.5	10.0

CHEMICAL ANALYSES OF GROUND WATER IN MICHIGAN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

LOCAL WELL NUMBER	NAME	LATITUDE/ LONGITUDE	GEO- LOGIC UNIT	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED IRON (FE) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)
				WASHTENAW COUNTY--Continued							
3S 7E23CBBB1		421234083345301	112PLSC	70-12-10	100	--	--	--	63	47	--
3S 7E28CDCC1		421118083365201	112PLSC	70-12-10	126	--	--	--	35	21	--
3S 7E31CCBC1		421030083393101	342CTON	70-12-10	237	--	--	--	.0	.0	--
3S 7E36BCBB1		421037083334201	345ERIN	70-12-10	132	--	--	--	5.6	6.8	--
4S 3E 7DBDB1		420809084070901	112PLSC	71-03-04	195	--	--	--	70	22	--
4S 3E 8DAAB1		420817084052601	337MSSPL	71-04-17	245	--	--	--	59	24	--
4S 3E21BBCB1		420650084051801	112PLSC	71-02-04	218	--	--	--	80	22	--
4S 3E23BADD1		420652084022501	112PLSC	71-03-04	126	--	--	--	72	16	--
4S 3E36BADD1		420506084010901	112PLSC	71-04-20	53	--	--	--	82	27	--
4S 4E 3ADAA1		420947083555801	112PLSC	71-03-06	116	--	--	--	84	29	--
4S 4E 7BCAB1		420850084002601	112PLSC	71-03-06	114	--	--	--	82	33	--
4S 4E17CDCC1		420721083570301	112PLSC	71-04-17	135	--	--	--	88	20	--
4S 4E25CCCA1		420552083541901	112PLSC	71-04-17	137	--	--	--	75	45	--
4S 4E27CAAC1		420559083562901	112PLSC	71-03-06	146	--	--	--	110	41	--
4S 4E33CDDD1		420446083573001	112PLSC	71-03-06	99	--	--	--	122	36	--
4S 5E 5CBBA1		420938083522001	112PLSC	70-11-30	147	--	--	--	79	31	--
4S 5E 9DADD1		420839083500701	112PLSC	70-11-30	103	--	--	--	108	27	--
4S 5E14AABA1		420824083475801	342CTON	70-11-30	159	--	--	--	57	20	--
4S 5E19DBBC1		420658083525001	112PLSC	70-11-30	138	--	--	--	88	40	--
4S 5E26CDDC1		420551083482101	342CTON	70-11-30	278	--	--	--	64	27	--
4S 5E26DCAA1		420559083480001	112PLSC	70-11-30	258	--	--	--	57	27	--
4S 5E32DDDD1		420456083511201	112PLSC	70-11-30	146	--	--	--	85	30	--
4S 6E 5CBAD2		420941083451001	342CTON	70-11-23	160	--	--	--	50	22	--
4S 6E 8CCDD1		420828083451001	112PLSC	70-11-09	318	--	--	--	26	23	--
4S 6E 9BBCD2		420909083440602	112PLSC	70-11-10	191	--	--	--	26	14	--
4S 6E11BCCB2		420905083414802	112PLSC	70-11-10	233	--	--	--	18	14	--
4S 6E13BABB1		420834083402301	112PLSC	71-05-06	117	--	--	--	16	6.8	--
4S 6E20BBAD1		420732083450701	112PLSC	71-05-06	177	--	--	--	20	8.8	--
4S 6E23CDCD1		420647083412301	342CTON	71-05-06	119	--	--	--	16	6.8	--
4S 6E31DBDC1		420515083454301	342CTON	70-11-13	119	--	--	--	42	4.0	--
4S 6E36DCBD1		420510083395601	112PLSC	70-11-23	109	--	--	--	44	17	--
4S 7E 2CBBB1		420954083345501	342CTON	70-10-28	140	--	--	--	34	19	--
4S 7E 7BABA1		420919083391001	--	70-10-28	187	--	--	--	132	58	--
4S 7E14AADA1		420827083334201	345DUND	71-08-17	111	--	--	--	--	--	--
			345ERIN	70-10-29	111	--	--	--	25	11	--
4S 7E22CBCC1		420704083355501	112PLSC	70-10-29	102	--	--	--	12	3.4	--
4S 7E29BBCB1		420638083381601	342CTON	70-10-30	118	--	--	--	4.0	3.4	--
4S 7E36BBDD1		420548083331801	345ERIN	70-10-29	63	--	--	--	20	6.8	--
02S03W21DACA01	STEFFANS.	421704084043601	--	71-08-13	70	--	--	--	--	--	--
02S04E33D 01	KUHL.....	421534083582201	--	71-08-13	55	19	900	55	94	21	6.9
03S03E15BBBD01	STACEY...	421306084042001	--	71-08-12	252	--	--	--	--	--	--
03S03E29BDBD01	DROUARE..	421106084061901	--	71-08-12	84	--	--	--	--	--	--
03S03E33BDCD01	KOUBA, L.	421006084050401	--	71-08-12	170	15	2400	170	86	19	3.1
03S04E22CCCC01	BOEHLER..	421149083571101	--	71-08-17	95	12	10	38	100	25	3.0
03S04E35DBAA01	GANZHORN.	421026083551001	--	71-08-17	114	--	--	--	--	--	--
04S04E09BBBB01	P DURAND.	420905083581201	--	71-08-16	58	9.8	9100	90	100	22	6.0
04S04E06CAAC01	BUSS, C..	420925084001501	--	71-08-17	91	--	--	--	--	--	--
04S07E22ADAD01	SPENCER..	420724083345301	--	71-08-20	103	12	100	37	21	10	69
04S07E26BAAB01	DUGAS, F.	420619083345001	--	71-08-17	70	--	--	--	--	--	--
				WAYNE COUNTY							
04S08E14D 01	STEVENS	420810083274001	--	71-08-20	102	9.0	20	34	45	12	53
04S08E23CBA 01	GORDON, L	420810083272001	348DRRV	71-08-18	105	--	--	--	--	--	--

ANALYSES OF GROUND WATER FOR MINOR ELEMENTS

LOCAL WELL NUMBER	NAME	LATITUDE/ LONGITUDE	DATE	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED CADMIUM (CD) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED MERCURY (HG) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)
				KALAMAZOO COUNTY							
02S11W10DCB 01	KVP B 11A	421825085344301	71-08-04	3	0	1	0	.9	1	0	20
02S11W22CCAA01	CNTRL 1 C	421641085350501	71-08-04	2	0	1	0	1.5	1	6	20
03S11W12CBC 01	UPJOHN 29	421315085330001	71-07-30	0	--	0	0	.5	4	0	50
				LENAWEE COUNTY							
07S04E22BB 01	SIMPLEX	415140083563001	71-08-18	0	0	0	0	--	2	0	74
				MONROE COUNTY							
05S08E32AA 01	M STONE	420090083302001	71-08-19	7	0	0	0	--	3	0	38
06S09E09BCC 01	LANGTON	41595083232001	71-08-19	7	1	0	0	--	4	0	450
07S06E03CABC01	PTSBRG W C	425344083422101	71-08-18	6	0	0	3	--	1	0	20
07S07E02B 01	IDA HS	415420083342501	31-08-18	2	0	0	0	--	0	0	60
				ST CLAIR COUNTY							
06N14E35CBD 01	MEMPHIS 2	425402082463001	71-08-09	18	0	1	0	--	1	0	20
07N14E32DDD 01	KHATTENY	425907082494801	71-08-10	8	2	1	0	--	4	0	300
08N15E26ADA 01	C OF CHRI	430607082393701	71-08-11	3	0	0	0	--	0	--	360
				WASHTENAW COUNTY							
02S03E26DACD01		421610084021601	71-08-13	20	0	1	2	--	1	0	20
04N04E09BBBB01	P DURAND	420905083581201	71-08-16	0	0	0	0	--	2	2	48

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS_SOLVED NITRATE (NO3) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
WASHTENAW COUNTY--Continued												
--	444	E8.0	31	--	E.0	--	--	350	0	540	7.4	11.0
--	293	E.0	32	--	E.0	--	--	174	0	430	7.7	14.0
--	259	.0	24	--	--	--	--	0	0	370	7.8	14.5
--	244	E6.0	15	--	E.0	--	--	42	0	320	7.8	12.0
--	359	E5.0	4.0	--	E.0	--	--	266	0	540	7.4	9.0
--	354	E6.7	8.0	--	E.0	--	--	246	0	560	7.9	13.0
--	351	E8.4	1.0	--	E.0	--	--	292	4	560	7.4	11.0
--	281	E15	5.0	--	E.0	--	--	246	16	460	7.5	11.0
--	373	E21	14	--	E.0	--	--	314	8	700	7.5	14.0
--	386	E22	2.0	--	E.0	--	--	330	14	700	7.4	11.0
--	434	E13	3.0	--	E.0	--	--	340	0	700	7.3	11.5
--	361	E9.0	3.0	--	E.0	--	--	300	4	580	7.5	13.0
--	512	E.0	3.0	--	E.3	--	--	370	0	800	7.6	13.0
--	534	E.0	.0	--	E.0	--	--	444	6	800	7.2	11.5
--	348	E105	9.0	--	E.0	--	--	454	128	900	7.4	11.0
--	400	E15	5.0	--	E.0	--	--	324	0	500	7.9	12.5
--	388	E74	2.0	--	E.0	--	--	380	62	540	7.6	11.5
--	346	E12	18	--	E.0	--	--	226	0	430	8.3	14.0
--	473	E12	4.0	--	E.0	--	--	386	0	660	8.1	13.0
--	432	E6.0	88	--	E.0	--	--	270	0	700	7.4	12.0
--	386	E.0	15	--	E.0	--	--	254	0	480	8.1	13.5
--	405	E20	7.0	--	E.0	--	--	336	4	500	8.1	13.0
--	266	E.0	445	--	E.0	--	--	216	0	1400	8.4	13.0
--	276	E6.6	46	--	E.0	--	--	162	0	520	7.8	13.0
--	254	E.0	33	--	E.0	--	--	121	0	460	7.9	12.0
--	234	E5.8	18	--	E.0	--	--	104	0	380	7.6	12.0
--	234	E5.8	15	--	E.0	--	--	68	0	380	7.8	12.0
--	251	E9.0	31	--	E.0	--	--	86	0	470	7.4	14.0
--	271	--	31	--	E.0	--	--	68	0	500	7.4	12.0
--	354	E5.8	25	--	E.0	--	--	112	0	560	7.9	11.0
--	244	E6.6	109	--	E.0	--	--	180	0	580	8.2	10.0
--	276	E.0	6.0	--	E.06	--	--	162	0	400	7.9	29.5
--	337	E.0	2310	--	E.0	--	--	570	294	8000	7.6	14.5
--	249	.0	4.0	--	--	.010	--	102	0	370	7.9	15.0
--	246	E.0	2.0	--	E.0	--	--	108	0	360	8.0	13.0
--	254	E5.0	15	--	E.0	--	--	44	0	380	8.0	14.0
--	256	E5.0	8.0	--	E.0	--	--	24	0	380	8.4	14.0
--	168	E9.0	3.0	--	E.0	--	--	78	0	260	7.8	14.5
--	338	7.0	9.0	--	.0	.006	--	278	1	570	7.4	16.0
1.4	386	18	7.0	.5	.0	--	349	320	5	595	7.5	14.0
--	285	13	.0	--	.02	.000	--	258	24	430	7.6	18.0
--	361	7.0	2.5	--	.0	.10	--	344	48	550	7.2	15.5
.9	354	14	2.0	.3	.0	--	296	290	3	525	7.6	16.0
.9	370	45	8.8	.2	13	--	386	350	49	650	7.8	15.0
--	256	46	5.0	--	.0	.094	--	248	38	460	7.2	16.0
2.1	282	94	28	.1	.0	--	422	340	110	660	7.5	14.0
--	359	17	2.0	--	.0	.000	--	310	16	520	7.5	14.0
1.9	284	.6	7.3	2.4	.0	--	258	94	0	439	7.6	11.5
--	237	.0	3.0	--	.0	.006	--	120	0	340	7.7	17.5
WAYNE COUNTY--Continued												
1.7	220	75	11	2.2	.0	--	330	160	0	527	7.3	12.5
--	198	F225	9.0	--	.0	.029	--	294	130	700	7.9	22.0

Temperatures of ground water are measured as part of a state-wide water resource investigation in cooperation with Michigan Department of Natural Resources. The purpose of these measurements is to determine the natural ground-water temperature of selected points throughout the state. These data, when combined with existing theory, can be used to estimate ground-water temperatures at moderate depth at any point in the state. Measurements of temperature were made by means of "lazy" thermometers (Heath 1964, Art, 171, U.S. Geol. Survey Prof. Paper 475-D), which remained in the well except when being read.

TEMPERATURE (°C) OF GROUND WATER AT INDICATED DEPTH

DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)
ALLEGAN COUNTY, WELL NO. 03N14W23DD (LAT 423733, LONG 0855509) DEPTH 41.0 FT.					
OCT. 08, 1970	9.4	FEB. 11,.....	9.9	JUNE 10,.....	9.5
NOV. 04,.....	9.7	MAR. 16,.....	9.8	JULY 12,.....	9.3
DEC. 08,.....	9.9	APR. 08,.....	9.7	AUG. 11,.....	9.3
JAN. 08, 1971	9.9	MAY 04,.....	9.6	SEPT 15......	9.4
CHARLEVOIX COUNTY, WELL NO. 32N04W10DA (LAT 451050, LONG 0845634) DEPTH 10.7 FT.					
OCT. 12, 1970	10.3	MAR. 11,.....	5.9	JULY 01,.....	7.3
DEC. 07,.....	8.5	APR. 21,.....	5.0	AUG. 04,.....	8.2
JAN. 11, 1971	7.2	MAY 05,.....	5.4	SEPT 07,.....	9.4
FEB. 11,.....	6.7	JUNE 02,.....	6.0		
CLINTON COUNTY, WELL NO. 06N02W16DD (LAT 425410, LONG 0843235) DEPTH 23.0 FT.					
OCT. 23, 1970	11.7	FEB. 22,.....	9.6	JUNE 22,.....	8.6
NOV. 24,.....	11.9	MAR. 23,.....	8.6	JULY 22,.....	9.2
DEC. 22,.....	11.4	APR. 22,.....	8.2	AUG. 23,.....	10.0
JAN. 22, 1971	10.4	MAY 21,.....	8.0	SEPT 23,.....	11.0
CRAWFORD COUNTY, WELL No. 26N04W11CB (LAT 443943, LONG 844604) DEPTH 11.4 FT.					
OCT. 23, 1970	11.5	FEB. 22,.....	5.4	JUNE 21,.....	8.9
NOV. 24,.....	8.6	MAR. 21,.....	5.0	JULY 22,.....	10.1
DEC. 22,.....	7.5	APR. 22,.....	4.8	AUG. 23,.....	11.5
JAN. 22, 1971	5.5	MAY 24,.....	6.8	SEPT 23,.....	11.6
DICKINSON COUNTY, WELL NO. 43N28W32AD (LAT 460459, LONG 0874337) DEPTH 31.0 FT.					
OCT. 05, 1970	7.5	APR. 08,.....	7.6	AUG. 11,.....	6.9
DEC. 22,.....	7.6	MAY 11,.....	6.6		
MAR. 10, 1971	7.2	JULY 15,.....	6.6		

DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)
GRAND TRAVERSE COUNTY, WELL NO. 26N09W13CC (LAT 443832, LONG 0852112) DEPTH 12.6 FT.					
OCT. 23, 1970	10.3	FEB. 22,.....	5.7	JUNE 21,.....	6.4
NOV. 24,......	9.8	MAR. 22,.....	5.9	JULY 22,.....	7.0
DEC. 22,......	8.2	APR. 20,.....	5.1	AUG. 23,.....	8.6
JAN. 21, 1971	7.2	MAY 24,.....	5.6	SEPT 23,.....	9.5
GRATIOT COUNTY, WELL NO. 12N03W35BC (LAT 432319, LONG 0843847) DEPTH 20.0 FT.					
OCT. 23, 1970	11.6	FEB. 22,.....	8.6	JUNE 22,.....	8.0
NOV. 24,.....	11.4	MAR. 23,.....	7.6	JULY 22,.....	9.0
DEC. 22,.....	10.2	APR. 22,.....	6.8	AUG. 23,.....	10.1
JAN. 22, 1971	8.8	MAY 21,.....	7.2	SEPT. 23,....	11.0
HILLSDALE COUNTY, WELL NO. 07S02W10CA (LAT 415236, LONG 0843137) DEPTH 20.0 FT.					
OCT. 16, 1970	10.1	FEB. 12,.....	9.9	JUNE 15,.....	8.2
NOV. 16,.....	10.5	MAR. 15,.....	9.3	JULY 15,.....	8.4
DEC. 17,.....	10.6	APR. 14,.....	8.7	AUG. 13,.....	8.8
JAN. 13, 1971	10.4	MAY 14,.....	8.3	SEPT 14,.....	9.2
INGHAM COUNTY, WELL NO. 03N01E07CD (LAT 423934, LONG 0842149) DEPTH 40.9 FT.					
OCT. 26, 1970	10.4	FEB. 25,.....	10.5	JUNE 28,.....	10.0
NOV. 25,.....	10.3	MAR. 26,.....	10.5	JULY 29,.....	10.0
DEC. 23,.....	10.4	APR. 27,.....	10.0	AUG. 27,.....	10.0
JAN. 25, 1971	10.5	MAY 27,.....	10.0	SEPT 23,.....	10.0
KENT COUNTY, WELL NO. 10N12W13DD (LAT 431500, LONG 0854022) DEPTH 30.4 FT.					
OCT. 05, 1970	9.6	FEB. 08,.....	9.7	JUNE 02,.....	8.7
NOV. 02,.....	9.8	MAR. 08,.....	9.3	JULY 06,.....	8.8
DEC. 07,.....	10.2	APR. 05,.....	8.9	AUG. 04,.....	8.9
JAN. 06, 1971	10.0	MAY 03,.....	8.9	SEPT 08,.....	9.1
LENAWEE COUNTY, WELL NO. 05S01E12DD (LAT 420246, LONG 0841506) DEPTH 39.0 FT.					
OCT. 12, 1970	9.4	APR. 12,.....	9.6	AUG. 12,.....	9.2
NOV. 12,.....	9.4	MAY 12,.....	9.4	SEPT 02,.....	9.2
DEC. 14,.....	9.6	JUNE 11,.....	9.4		
JAN. 12, 1971	9.6	JULY 12,.....	9.4		

DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)
MACKINAC COUNTY, WELL No. 41N05W23BC (LAT 455603, LONG 0845355) DEPTH 47.5 FT.					
OCT. 22, 1970	11.2	JAN. 12, 1971	8.3	MAY 19,.....	6.3
DEC. 01,.....	9.6				
			(DISCONTINUED)		
MARQUETTE COUNTY, WELL NO. 47N29W02 (LAT 462959, LONG 0875313) DEPTH 19.0 FT.					
OCT. 05, 1970	10.6	MAR. 04,.....	4.7	JULY 12,.....	7.6
DEC. 16,.....	7.4	MAY 12,.....	3.7	AUG. 20,.....	9.2
JAN. 10, 1971	6.1	JUNE 17,.....	5.8	SEPT 22,.....	9.9
MASON COUNTY, WELL NO. 17N15W03CD (LAT 455326, LONG 0860531) DEPTH 30.4 FT.					
OCT. 06, 1970	9.0	FEB. 10,.....	9.2	JUNE 03,.....	8.1
NOV. 03,.....	9.1	MAR. 10,.....	8.9	JULY 07,.....	8.3
DEC. 09,.....	9.3	APR. 06,.....	8.7	AUG. 05,.....	8.5
JAN. 05, 1971	9.4	MAY 04,.....	8.3	SEPT 09,.....	8.7
MEMOMINEE COUNTY, WELL NO. 37N26W19DA (LAT 453500, LONG 0873315) DEPTH 18.4 FT.					
OCT. 29, 1970	11.2	MAY 03,.....	5.9	JULY 02,.....	7.9
DEC. 18,.....	9.0	MAY 21,.....	6.4	AUG. 30,.....	10.6
MAR. 22, 1971	6.1	JUNE 15,.....	7.1	SEPT 21,.....	11.0
MONROE COUNTY, WELL NO. 07506E15AD (LAT 415235, LONG 0834140) DEPTH 17.9 FT.					
OCT. 07, 1970	11.6	FEB. 23,.....	9.8	JUNE 15,.....	8.3
NOV. 04,.....	11.6	MAR. 22,.....	9.2	JULY 21,.....	9.1
DEC. 09,.....	11.6	APR. 19,.....	8.5	AUG. 03,.....	9.4
JAN. 19, 1971	10.5	MAY 25,.....	8.3	SEPT 20,.....	10.5
MUSKEGON COUNTY, WELL NO. 11N15W34DA (LAT 431806, LONG 0860444) DEPTH 32.0 FT.					
OCT. 06, 1970	9.2	FEB. 09,.....	9.5	JUNE 03,.....	8.8
NOV. 03,.....	9.4	MAR. 09,.....	9.2	JULY 07,.....	8.8
DEC. 08,.....	9.5	APR. 06,.....	8.9	AUG. 08,.....	8.8
JAN. 06,.....	9.6	MAY 04,.....	8.9	SEPT 07,.....	8.9

TEMPERATURE (°C) OF GROUND WATER AT INDICATED DEPTH.--CONTINUED

DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)
OAKLAND COUNTY, WELL NO. 05N08E08AC (LAT 425116, LONG 0833215) DEPTH 42.0 FT.					
OCT. 20, 1970	10.0	MAR. 09,.....	9.2	JULY 07,.....	9.2
NOV. 17,.....	9.0	APR. 05,.....	9.3	SEPT 07,.....	9.0
JAN. 11, 1971	9.2	MAY 04,.....	9.2		
FEB. 11,.....	9.2	JUNE 07,.....	9.2		
ROSCOMMON COUNTY, WELL NO. 24N02W20BA (LAT 442722, LONG 0843507) DEPTH 12.0 FT.					
OCT. 23, 1970	9.1	FEB. 22,.....	5.0	JUNE 01,.....	6.3
NOV. 24,.....	8.1	MAR. 22,.....	4.7	JULY 24,.....	7.6
DEC. 22,.....	6.8	APR. 22,.....	4.9	AUG. 23,.....	8.3
JAN. 22, 1971	5.6	MAY 24,.....	5.4	SEPT 23,.....	8.5

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